PENNSYLVANIA GAME NEWS

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EDITORIAL

JULY 1941

IN THIS ISSUE

E. LEE LE COMPTE HONORED

★

YOUR FRIEND THE GAME PROTECTOR
By CHAS. F. STAMBAUGH

★

THE LIFE EQUATION OF THE RINGNECK PHEASANT
By PIERCE E. RANDALL

★

A FAMILY REUNION
By THE EDITOR

★

WILDLIFE INSURANCE FOR THE AMERICAS

★

SPORT AND NATIONAL DEFENSE

★

FROM BEHIND THE CAMERA
By C. GORDON KRIEBLE

★

YOUNG TREES AND YOUNGSTERS

★

SNAKES
By A. B. CHAMPLAIN

★

FOX HUNTING NOTES
By W. NEWBOLD ELY, M.F.H.

TRAINING FOR THE FUTURE

THAT our natural resources will be forever safe-guarded is being clearly evidenced by the ever-growing number of persons who are interested in the preservation of those resources.

For example, it was not a mere passing interest which prompted 306 men from all walks of life to apply for entry into the Game Commission's Training School on June 7 nor was that interest prompted only from the standpoint of acquiring a position which would "tide them over" until something better came along. To the contrary it was prompted by enthusiasm born out of an abiding love for the outdoors, and all of the things of the outdoors. These men were not looking for jobs; they wanted sincerely to dedicate their lives to a cause.

Evidence of their enthusiasm was apparent on every hand; through their conversation, through their eagerness, through the fact that all of them were already employed, some holding very good positions in other vocations.

From all walks of life them came — school teachers, farmers, laborers, machinists, electricians, students, miners, mill workers — each determined to make an heroic attempt to fulfill a life-long ambition. Some of them were married, some of them single; some of them were members of sportsmen's organizations and had a pretty thorough knowledge of the Commission's program; some were deputy game protectors who served the Commission well for many years, but who were compelled nevertheless to take their chances on entering the School along with others of less experience in the conservation field; some came knowing full well that their Selective Service rating would no doubt call them to defense of Country even should they be successful in gaining entrance to the School.

Out of the 306 who applied, 239 came to Harrisburg and took the written examination. Out of that large group, 50 attained a rating which made them eligible to take the second or oral examination; of these fifty, 8 failed, 14 were rejected by examining physicians, and 1 withdrew. The remaining 27 — one of the finest groups of men ever to enter the service of any organization — enrolled at the School on June 7.

Whether they are successful in reaching their goal depends upon their initiative, their ability, and on how they deport themselves. Under the leadership of the Superintendent of the School and his staff they will be given every opportunity to get the most out of this vocational training. Their life will not be an easy one for the next twelve months — they will have to study hard and work hard; furthermore, they will have to sacrifice, personally and at home — another point in favor of the sincerity of their enterprise. When you take into consideration the fact that they will receive only very little monetary compensation during their schooling, to say nothing of the domestic adjustments they will have to make, especially those with wives and children; when you realize that a few sacrificed even their places of business, their sincerity of purpose is even more evident. The best of luck to the lucky 27. They made the grade "on their own" and they deserve it.

Photo courtesy U. S. Soil Conservation Service

"And the silence of the great mountain ranges was often shattered by the shrill, defiant cry of the American Eagle . . . the bald eagle . . . mighty individual, fierce and free . . . symbol of a great nation of free and independent people.

THE SPORTSMAN'S PRAYER

By JIMMIE GUTHRIE

Thank you God, for my being born an American.

For putting into my body and life the ideals of sportsmanship.

For placing me on this Earth in a spot where fields and forests are still green, and which echo the sounds of wildlife and the songs and whistling of birds — not the roar of cannon.

Where free men enjoy hunting camps — not the agony and torture of Concentration Camps.

Where a drive "over the top" is in pursuit of the wary deer, not in search of a fellow human.

Where a sudden wh-r-r- is the sound of a grouse, — not a Stuka, or dive bomber.

Where I sit contented and sentinel-like for hours, scanning the Heavens with a practiced eye for ducks — not enemy raiders.

Where a "noisy honk" is migrating Geese — not an air-raid alarm.

Where a "depth charge" isn't for the destruction of humans — but a little lead sinker on the end of my fishing line.

Where the steady blast of catridges signify a nearby trap or skeet field — not a gory battlefield.

Where we teach our "fourteen-year-olds" the use of guns for pleasure and recreation — not for the destruction of our neighbors.

I'm glad I'm an American Sportsman — thank you God.

E. LEE LE COMPTE HONORED

Served Quarter of a Century as Maryland's Chief Game Warden

PROOF of the contention of conservation leaders that if you want a conservation program to succeed you must insure the continued service of qualified administrators, as well as technical and field employees, was demonstrated only too clearly when the Governor of Maryland, Federal and State officials, sportsmen and conservationists from that and nearby states including Pennsylvania, gathered at dinner at 6:30 P. M., Saturday, May 21, at the Lord Baltimore Hotel, to honor E. Lee LeCompte, State Game Warden of Maryland for twenty-five consecutive years, the head of a department that stands as a monument to his sincerity of purpose, to his unflagging energy and devotion to the cause. Since 1920 his position was covered by Civil Service. As a tribute to his unbroken record he was awarded the silver wreath of oaken leaves, the highest honor conferred by the International American Academy of Science. The award was made by Dr. Albin H. Warth, provost of the Academy.

The testimonial was held under the auspices of the Maryland State Game and Fish Protection Association, venerable conservation organization, which worked so closely in harmony with the honored guest, and which presented him with a beautiful mirror with a duck at each end and a very substantial purse. The Deputy Game Wardens also presented their Chief with a silver plaque, and he was the recipient of a gold watch presented by Henry P. Bridges, Secretary of the Woodmont Rod and Gun Club. J. Hammond Brown, president, opened the ceremonies and Talbott Denmead, of the U. S. Fish and Wildlife Service, and first chief deputy game warden serving with Warden LeCompte, presided as toastmaster. Former U. S. Senator Fred C. Walcott of Connecticut, long a personal friend of Warden LeCompte, made the principal address, in which he lauded Mr. LeCompte's accomplishments in a brief sketch of his work.

Virtually more than 500 residents of Maryland and nearby States were on hand to bear tribute to the man who put Maryland in the front rank of states in conservation, game breeding, and fish culture. Among them were such notables as Governor O'Conner, former Governor Phillips Lee Goldsborough, Seth Gordon, Executive Director of the Pennsylvania Game Commission representing that State as well as the International Association of Fish, Game and Forestry Commissions, and other Civil, State and Federal officials.

National recognition of Maryland's game wardens's work has been made time and again. Mr. LeCompte was elected president of the International Association of Game, Fish and Conservation Commissioners in 1925, and five years later he was chosen president of the American Fisheries Society. This organization is composed of ichthyologists, scientists and fish culturists. He was chairman of the American Game Conference in 1934, and was long a member of the Advisory Council of the United State Fish and Wildlife Service. He has been vice-chairman of the National Committee on Wildlife Legislation since 1925.

Fraternally, and in civic work, Mr. LeCompte is equally well known. In his sixty-fifth year, Mr. LeCompte is a big man, physically, standing over six feet; he is hale, hearty and very active, often putting in a score or more of hours a day at the work he chose twenty-five years ago as a vocation. No milk-and-water conservationist, he has decided views, and when the occasion demands, he can and does speak his mind; yet he is receptive to the opinions of others.

E. LEE LE COMPTE

He believes in rigid enforcement of the game, fish, and conservation laws, many of which he caused to be drafted. He has no toleration for the fish or game law violators. He holds staunchly to the theory of State's rights in the matter of administering its own fish and game; and he is a firm believer in the vested rights of the sportsmen, whose dollars, in the form of licenses fees, are responsible for the State's game and fish supply. He always strives to increase the pleasure of the sportsmen in liberalizing the taking of fish and game as far as possible without detriment to the supply.

Always an ardent Nimrod himself, Warden LeCompte liked nothing better in days gone by, than sport in the field—hunting behind a good pair of dogs, or a day in the duckblind when the wildfowl were flying. Fate has, indeed, played a nasty trick upon Maryland's Game Warden. That fickle Dame cast him in the role of providing wild game for the hunters to pursue, the fish for the anglers to catch, and then made him so busy at the job that he himself has in recent years enjoyed little of the sport.

Practically from its inception, the Maryland State Game Department and the Fresh Water Fisheries Department, which have been linked together since 1939, have been self-sustaining receiving no appropriation whatsoever from the State. Their support is derived solely from hunters' and anglers' license fees. These two departments are now known collectively as the Maryland State Game and Inland Fish Commission, which is administered by a non-salaried commission of five, with Warden LeCompte as executive officer.

With his appointment on June 1, 1916, as State Game Warden, LeCompte started from exactly scratch. His was a one-man department, and he was that department. His budget for the next two years was $511. Under his guidance the one-man department, with virtually no assets, in which he has been driver and truck horse, has grown into one of the strongest units of the Maryland State Government.

Throughout his long career Warden LeCompte has stressed the value of education along conservation lines, and in 1927 established an educational program in the schools in the counties with two lecturers daily, speaking on the necessity of conservation of wildlife. More than 100,000 pupils annually were benefitted by these lectures. A booklet, in color, entitled "Some Birds of Maryland" was published by the Department and is still being used as textbood in the high schools of the State.

Looking ahead after a quarter of a century of preparation Warden LeCompte can see only an increasingly fine picture for the hunters and the fishermen unless untoward events should occur.

Typical of the philosophy and sense of humor of "The Boss," which has carried him over many rough spots, was a recent observation—"We started from scratch and we have been scratching for something worth while ever since; the first twenty-five years were the hardest."

Your Friend THE GAME PROTECTOR

The promotion of public relations has grown to be one of his major duties.

PENNSYLVANIA has for forty years called its Game Law enforcement officers "Game Protectors." The time has long since passed when this State regarded its field officers as "Game Wardens." The duties of a Game Protector are so broad and varied that the word "warden" is not sufficiently inclusive to cover his numerous functions. It is pleasant to observe that we no longer regard our custodians of wildlife as mere police officers, for in a more proper sense they must be regarded as performing a service far more vital than that of the average policeman.

While it is true that one of the primary functions of a Game Protector is to patrol his district for violations of the Game Law, there are so many other important duties entering into his annual routine that law enforcement is only one of many equally important duties. Although it is natural to expect that he should apprehend some violators of the Game Law in his district in the course of a year, his efficiency is not measured by the number of arrests he makes, or the amount of fines he collects. Indeed, it would undoubtedly indicate a pleasing trend toward a much more desirable state of affairs if the number of prosecutions should show a substantial decline in the future. Nevertheless, it is only human to assume that we now have, and shall continue to have, a careless element that will disregard not only the Game Law but all other similar laws; for that reason, it is reasonable to anticipate that, for the preservation of our beneficial wildlife, it may be necessary to continue to maintain an adequate force of law enforcement officers to curb this small minority of our people.

The good sportsmen who observes the law, and this class includes well over 90% of all who engage in the sport of hunting and fishing, need harbor no fear whatsoever of the Game Protector. On the contrary, he should and does welcome him as an energetic friend constantly working for his best interests. Little does the average hunter realize, for instance, how many long dreary nights the Game Protector spends quietly in the deep forests in an effort to apprehend reported violators and thus preserve the game for the legitimate sportsman. By undergoing such hardships he is working for the fellow who is sportsman enough to wait until the season opens. Although the percentage of those who have no respect for law is comparatively small, this small group could, if not stopped, do serious damage to the supply of game birds and animals prior to the open season, were it not for the diligence of the Game Protector.

In addition to law enforcement, what you may ask, are some of the other duties of a modern Game Protector? He is also charged with the responsibility of investigating, and alleviating where possible, numerous complaints of damage by game birds and animals to personal property. There are periods throughout the year when this duty demands a considerable portion of his time, but valuing as he does the goodwill of the farmer or landowner, he responds promptly to all complaints and cooperates in alleviating them. The farmer or orchardist has certain rights to protect his property, and these are explained to him in detail. In this connection it often becomes necessary to trap small game, such as rabbits, pheasants and raccoons alive, and remove it to more desirable areas where no damage will be done and where the public may enjoy hunting it.

Feeding game is also one of the major activities of the Game Protector. Pennsylvania winters have been sufficiently severe in recent years to demand extensive artificial feeding of wild game, particularly the smaller species, to bring them safely through to the Spring breeding season. It often becomes necessary for him to wade deep snows, carrying heavy burdens of ear corn or scratch grain over his shoulder, so that gray squirrels he had seen on a mountainside, a flock of turkeys he has observed in a ravine, or a fine covey of quail he has been watching all through the Fall, will survive until Spring time. Thousands of tons of game food are carried out in this manner every winter by the Game Protector with the splendid assistance of interested sportsmen, Boy Scouts, mail carriers, farmers and others.

Another important function of a Game Protector is that a releasing wild game for restocking purposes. In Pennsylvania more than $300,000 a year is spent for the purchase and propagation of game for restocking, and the task of properly releasing game in suitable areas is a big one. His job is to see that it is placed on lands open to public hunting where there is sufficient food and cover for it to thrive. When received it must be liberated with the least possible delay, as any failure on his part to liberate birds promptly, or release rabbits from their crates, may mean substantial losses.

The promotion of public relations, primarily between the landowner and the sportsman, has grown to be one of his major duties. He constantly strives to impress upon the landowner the value of planting game foods and providing additional cover for game birds and animals. Thanks to those efforts the landowner is planting more food for game, is permitting certain food plants to stand as food for game in Winter, and is allowing more brush and other cover to remain on his land. Because he realizes the value of such practices, the landowner benefits by prevention of soil erosion and the presence of birds that assist him in destroying insects. The sportsman likewise benefits by more game and additional hunting privileges.

The antagonism which at one time existed between the landowner and the hunter is rapidly being overcome through just such methods as these. The hunter is showing more respect for the landowner's property, thus increasing his opportunities to hunt without encountering discouraging "trespass" signs. The Game Protector also often acts as the arbiter of differences of a minor nature between the sportsman and the landowner. Consequently, much more land is open to public hunting today than in former years when there was no such mutual understanding.

Along similar channels in the line of duty of a Game Protector is the promotion of an educational campaign throughout his district. He is often called upon to address groups of school students, Boy Scouts, and members of sportsmen's organizations, giving him excellent opportunities to reveal the value of birds as destroyers of insects and portray the methods whereby game animals can be properly encouraged to increase to the mutual advantage of all residents of his community.

This intensive study of wildlife by all interested groups is promoting a better appre-

Chas. F. Stambaugh

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ciation of all species and is of inestimable value in creating a closer observance of the game laws. When one begins to realize the insect-destroying properties of the quail, the pheasant, and our smaller insectivorous birds, he is more inclined to take care of them and has less inclination to destroy or discourage them. The Game Protector is ever on the alert to educate the people in his community as to the true economical and recreational values of the wild creatures which live round and about them.

The educational activities of a Game Protector, coupled with his efforts to promote better public relations, constitute a program in itself, and demand a considerable portion of his time. He well knows that the better this program can be promoted, the more simplified will be his job of law enforcement and other similar duties which at times are not always pleasant. His job is to make friends readily, to speak in public, and to successfully instruct in sound wildlife management practices. While it is realized that not every Game Protector can possibly be expert in all these qualifications, it is nevertheless a fact that as he grows in experience in the work his ability to promote public relations and educational programs improves. He soon acquires the two-fold advantage of speaking from actual observation and experience.

In addition to these somewhat regular duties of a Game Protector, there are often services of an emergency nature which he is called upon to perform and which have proven of invaluable assistance to the public. For example, during the disastrous flood of 1936, and again in the flood of 1940, Pennsylvania Game Protectors were rushed to the scenes where the most serious situations developed and rendered twenty-four-hour service in saving lives and property. They served willingly and tirelessly in these emergencies, and the many men, women and children they removed from flooded buildings will not soon forget them. When the flood call came, they immediately set aside all regular activities and devoted their full time to the emergency.

There are other such emergency services to which a Game Protector responds. Recently in western Pennsylvania a Game Protector was called upon to assist in finding a woman who, during a severe snowstorm, had wandered into the forest on foot and become lost. Throughout many hours of the night this officer and his dog led the hunt until it was concluded by the discovery of the dead body in the snow. This is just another example of the many unusual services a Game Protector cheerfully gives to humanity.

Raging forest fires often call him to the front. Many long hours are spent fighting such fires so that the forests may be preserved and wildlife saved. Some Game Protectors in forest areas carry special equipment for fire fighting, and their presence in the woods is often instrumental in stopping small fires before they develop into conflagrations. Such service is of direct benefit to sportsmen and the general public; without it a heavy loss of wildlife, as well as watershed protection, would undoubtedly result.

He makes sure that the game laws are enforced.

A Game Protector also has full authority to enforce the Fish and the Forestry Laws. During the Spring and Summer months, particularly during the trout and bass seasons, he gives full cooperation to Fish Wardens in enforcing fish regulations. It is his duty, under the law, to take an active interest in fish protection and to see that the fisherman plays the game according to the rules.

Laws to protect the forests not only against fire but against destruction by other means, such as the unlawful cutting and removal of trees, shrubs, and branches thereof, also come within the province of a Game Protector. His frequent warnings to the thoughtless hunter or picnicker against the careless throwing of a match, or the fisherman against tossing away a lighted cigarette, are only too well known to the active sportsman.

Along another line of duty he cooperates in the enforcement of the Dog Law. When infractions of that Law are observed, such as unlicensed dogs, or even licensed dogs, running at large, he is prompt to notify the owner of the dogs, or turn the information over to the Dog Law agent if, in his judgment legal action is advisable. Game Protec-

(Continued on Page 27)

He feeds game during winter.

The Life Equation of the R

By Pierce E. Randall *

ALTHOUGH a comparatively recent addition to the avifauna of Pennsylvania, the ringneck pheasant *(Phasianus colchicus torquatus)* is now one of the important game birds of the Commonwealth. For the purposes of securing information that will aid in shaping management policies for this species, a study of the ecology and management of the pheasant is being conducted by the Pennsylvania Cooperative Wildlife Research Unit.

The pheasant study is being carried on under the supervision of Dr. Logan J. Bennett, Biologist, U. S. Bureau of Biological Survey, and Dr. P. F. English, Associate Professor of Wildlife Management, Department of Zoology and Entomology, The Pennsylvania State College.

Leopold (1933) terms the collective action of the environmental factors on a given species in a given locality through a typical year the "life equation" of the species. This paper presents the available information on the life equation of the ringneck pheasant in southeastern Pennsylvania. These data result from an investigation conducted between July 1, 1938, and October 31, 1939.

This intensive study of pheasant populations was made on a 1,675-acre sample tract in Lehigh County. The area is considered typical of the first-class pheasant range and is in one of the most productive agricultural sections of the State.

On many farms a four-crop rotation—consisting of alfalfa or clover, followed by corn, then potatoes, and finally wheat—is practiced. At times the rotation is varied to include winter barley, oats, or soybeans. With a few exceptions, no large dairies are kept; and the percentage of the land area in pasture is small. Table 1 presents the acreage and the percentage of the total land area on the study tract occupied by each cover type during the summer of 1939.

The pheasant population of the Lehigh County study area on October 15, 1938, was estimated to be about 950 birds, or 1 bird to 1.8 acres. This figure was obtained by a roadside-census method in September and October (Randall and Bennett, 1939), supplemented by daily observations and censusing with a well trained pointer. During September pollen in the air interfered with the dog's scenting birds except very early in the morning, but by October only a few species of plants retained pollen and the dog was used very successfully.

The 1938 pheasant season extended from October 31 through November 26. The number of hunters using the study area and their daily kill were recorded. In isolated portions of the study tract, cooperating farmers aided the writer by listing the number of birds taken by sportsmen on their property. From all sources the kill of legal cock birds was estimated to be 266 (Table 2). Fifty-six per cent of these birds were killed on the opening day, and about 85 per cent were killed during the first week of the season.

Crippling losses were high. Data secured from cooperating sportsmen revealed a loss of about 33 per cent of the birds shot in eastern Pennsylvania (Randall, 1939b). Interviews with hunters and observations on the study area indicated a similar crippling loss. In addition to the reported kill, 133 birds were believed to have died in consequence of the shooting season (Table 2).

A few hen pheasants were killed by hunters, either by mistake or intentionally. These birds were often left where they fell. The dog used by the writer near the end of the season found several dead females. Farmers also reported hens illegally killed. About thirty-five hen pheasants were believed to have been shot during the gunning season.

During the fall a few birds were killed by accidents or predators. On the study area five pheasants lost their lives in November by flying into the sides of buildings. Fall mortality from all sources except hunting comprised only fifteen pheasants.

The large fields of standing corn on the study area provided the only suitable escape cover from gunners. These fields were extensively utilized as havens, but many harassed birds were driven from the area to more adequate escape cover nearby. A wood of several hundred acres was about a mile from the study tract. Pheasants flocked to this wood for safety during the open season. The number of pheasants that left the study area for better escape cover had to be determined by an indirect method. After the mortality from all fall decimating factors was totaled and the post-hunting season census was completed, the difference between these figures was regarded as the number of birds driven from the area by hunting. This movement apparently involved 201 pheasants (Table 2). Few of these ever returned to the study tract, for excellent winter habitats were available near their refuges.

During the winter all censusing was done while the ground was covered with several inches of snow. The pheasants were concentrated at such times in standing cornfields, fencerows, thickets, conifer plantations, and other good cover; and the task of censusing was simplified. A hound was used to aid in flushing the birds. The post-hunting-season census, completed on December 2, revealed that 300 pheasants were still on the study area.

By February 1 the pheasant population had dropped to 209 birds, a loss of 91. Three of these birds were killed in accidents. Ten birds, or 3 per cent of the population, were victims of various predators.

During the early winter seventy-eight pheasants moved off the area. Forty of these birds left immediately after an 11-acre standing corneld in which they had fed and loafed was machine-picked in late December. Several other flocks moved from the area when their food supplies were cut off by snow. These birds had been feeding in cornfields harvested with a mechanical corn-picker. Although this machine missed from 3 to 5 per cent of the grain. It broke the stalks less than a foot above the ground. A light snowfall covered this food supply and forced the pheasants to other habitats.

On half of the study tract, known as the Spring Creek Unit, 14.1 per cent of the total land area was occupied by hand-picked standing cornfields. On the other half of the study tract, designated as the Brooksides Unit, only 1.5 per cent of the land area supported standing corn. Plenty of winter cover was available on both units. A realignment of the pheasant population resident on the study tract began about the time of the first major snowfall. By February 1, 184 birds were living on the Spring Creek Unit, a population

*Dept. Zoology and Entomology, Pa. State College. Reprinted from Transactions Fifth North American Wildlife Conference, 1940.

TABLE 1.—Land use, summer, 1939.

Crop	Acreage	Per cent of total area
Wheat	489	29.2
Corn	326	19.5
Potatoes	300	18.0
Alfalfa and clover	206	12.2
Barley	123	7.3
Oats	104	6.2
Wasteland	50	3.0
Pasture	19	1.1
Soybeans	12	0.7
Orchards	7	0.4
Sweet clover	5	0.3
Conifer plantations	3	0.2
Farmyards, etc.	31	1.9
	1,675	100.0

TABLE 2.—Life equation for pheasants.

Date	Item and computation	Gain	Loss	Current population
On Oct. 30, 1938	Fall population			950
Oct. 31 to Nov. 26, 1938	Legal kill		266	
	Crippling loss		133	
	Illegal kill		35	
	Fall mortality		15	
	Driven from study area by hunting		201	
By Dec. 2, 1938	Total hunting season losses		650	300
	Early winter mortality		13	
	Strayed from area		78	
By Feb. 1, 1939	Total early winter losses		91	209
	Late winter and early spring mortality		30	
	Strayed on area from surrounding territory	25		
By Apr. 12, 1939	Net late winter losses		5	204
	Sex ratio = 27 cocks and 177 hens			
By July 15, 1939	Late spring and early summer mortality		24	180
May to August, 1939	80 clutches successful at 9.7 birds per clutch	776		956
May to Sept., 1939	Juvenile mortality		96	860
By Sept. 20, 1939	Late summer adult mortality		10	850
Sept. 20, 1939	Current population			850

Ringneck Pheasant in Pennsylvania

TABLE 3.—Success of nests by dates, study area.

Date of first egg	Total nests	No. nests successful	Per cent successful	Per cent of all successful nests
April 1-15	4	1	25.0	2.3
April 16-30	14	3	21.4	6.8
May 1-15	23	11	47.8	25.0
May 16-31	51	22	43.1	50.0
June 1-15	30	5	16.7	11.3
June 16-30	17	1	5.9	2.3
July 1-15	8	1	12.5	2.3
July 16-31	3	0	0.0	0.0
Totals	150	44	29.5	100.0

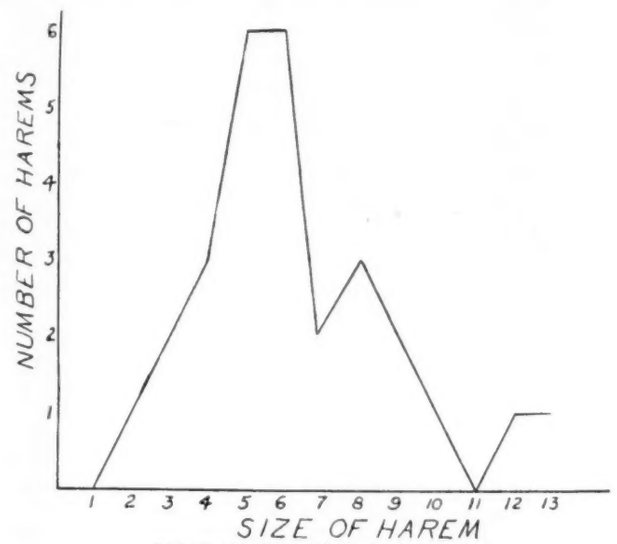

FIG. 1.—Number of hens in harems.

TABLE 4.—Distribution of nests by dates and cover types.

Date of first egg	Road side	Fence-row	Waste land	Alfalfa, clover	Small grain	Pasture	Potatoes	Misc.	Total
April 1-15	1	2	2	1	0	1	0	0	7
April 16-30	4	3	5	8	1	0	0	5	26
May 1-15	4	6	6	33	5	3	0	4	61
May 16-31	1	1	6	63	10	1	0	3	85
June 1-15	3	0	5	32	8	0	0	0	47
June 16-30	2	0	2	14	1	0	0	0	19
July 1-15	2	0	3	2	0	0	2	0	9
July 16-31	0	1	1	0	1	0	0	0	3
Totals	16	13	30	153	26	5	2	12	257

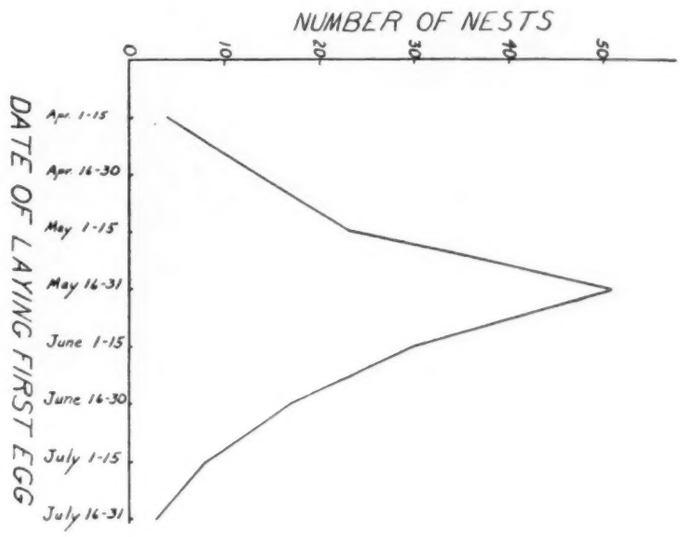

FIG. 2.—Dates of beginning of clutch.

of 1 bird to 4.5 acres; only twenty-five pheasants remained on the Brooksides Unit, a population of 1 bird to 34 acres (Randall, 1939a). The amount of standing corn apparently determines to a large extent the number of pheasants that an area in southeastern Pennsylvania will winter.

Late winter mortality among the study-area pheasants reduced the population by thirty birds. It was believed that twenty-seven of these were taken by predators. Although many kills were evidently the work of raptors, the predators responsible for most of the kills could not be identified. Cooper's haws *(Accipiter cooperi)* were flushed from two kills and were suspected of others. Pheasants were very much afraid of Cooper's hawks. A hen pheasant was killed by a Cooper's hawk in a standing cornfield during the afternoon of January 20. Previously thirty birds had eaten there daily, but for four days thereafter no pheasants fed in this cornfield. Ten days later the pheasants still did not loiter in this cornfield as they had before: they sought brushy cover as soon as they had finished feeding.

Much of the winter and early spring predation occurred during late March and early April. Fourteen birds, or 7 per cent of the study area population, were taken by predators between March 15 and April 10. Errington (1937) stated that there seemed to be a temporary increase in vulnerability of pheasants to general predation about the time the birds began their mating and nesting activities. As mating activities began in late March this might account for the increased pressure from predators. At this period the pheasants began to expose themselves much more freely than they did earlier in the winter, probably owing to mating and nesting impulses.

The pheasant study revealed the need of greater proximity of food and cover. All too often, dense fencerows and other good winter cover were on an area but no permanent food supply was available. On a few areas, cornshocks or other foods were available but cover was lacking. Both food and cover must be present, close to each other and preferably adjoining. Studies in Iowa during the severe winter of 1935-36 revealed that pheasants in the open may choke or freeze to death in sub-zero weather accompanied by strong winds (Green and Beed, 1936). Green (1938) found that during this severe winter survival was high in those flocks that needed to range only a short distance from good cover for food, and was poor in those flocks that were forced to travel a considerable distance from cover for food. The ideal winter pheasant habitat is probably a hand-picked standing cornfield surrounded by thick fencerows or other brushy cover.

The spring census, completed with the aid of the pointer on April 12, revealed that 204 birds were resident on the study area. This was a population of about 1 bird to 8 acres.

The spring movement during late March and early April had distributed the population evenly over the area. In midwinter only 25 pheasants had remained on the Brooksides Unit, while the Spring Creek Unit had harbored 184 birds. By April 12 the population of the two areas were approximately equal.

The spring or breeding-season population consisted of 27 cock pheasants and 177 hens, a sex ratio of 1 cock to 7 hens. Spring and early summer mortality from accidents and predation reduced the adult population to 154 hens and 26 cocks by July 15. This was a sex ratio of 1 male to 6 females.

The ringneck pheasant is a polygamous animal, evincing a territorial type of polygamy. A cock bird appropriates a territory in

(Continued on Page 28)

TABLE 5.—Per cent acreage-use values, study area.

Cover type	Value	Cover type	Value
Roadsides	19.8	Pasture	1.5
Fencerows	18.7	Wheat	0.6
Conifer plantations	5.5	Barley	0.2
Wasteland	5.0	Oats	0.2
Alfalfa and clover	4.4	Potatoes	0.2

TABLE 6.—Nest locations in 17.4-acre cloverfield on basis of area.

Distance from edge in feet	Area of strip in acres	No. nests in strip	Nests per acre
0- 50	7.5	4	.53
50-100	7.0	10	1.43
100-150	6.5	7	1.08
150-200	6.1	4	.66
Over 200	2.9	3	1.03
Totals	30.0	28	.93

A FAMILY REUNION

This fire burned over 2,022 acres of State Game Lands, and an additional 1,000 acres of adjoining timber recently in Clearfield County, near McGee's Mills.

ON May 4 State officials of the Pennsylvania Federation of Sportsmen's Clubs, Chairmen, Vice-Chairmen and Secretaries of the several Divisions of the Federation, certain members of the Game Commission, its Executive Staff and Field Division Supervisors were guests of Ross L. Leffler President of the Commission at his beautiful summer camp near New Florence, Westmoreland County, for an informal conference concerning their mutual problems to answer questions that might arise, and to get better acquainted all around.

This was not the first time that President Leffler was host to gatherings of this kind. At different times division officers of the Federation, and local representatives of the Commission assembled there and discussed in open forum the many problems besetting both groups. But it was the first time that practically all the Federation's officers and the officials of the Commission joined hands in such a conference.

Although strictly informal, and although conducted largely on a purely social and personal contact basis, I nevertheless took a few notes of the various discussions. Many expressions were aired and no punches were pulled on either side. Every argument was a constructive one, and the wholesome atmosphere which prevailed throughout convinced me that the more of such gatherings that are held the more progressive and better understood the wildlife conservation movement in Pennsylvania will become.

One of the foremost discussions, which was opened by R. S. Cooper, President of the Southwest Division, concerned forest and grass fires. Seth Myers and Robert Steventon also spoke on this important subject.

Following the discussion of the fire situation Archie Hanes, Vice-President of the Federation, who presided in the absence of President Merritts due to illness, appointed a Committee consistings of R. S. Cooper, Seth Myers and Robert Steventon to draft a resolution for submission at the afternoon session. The resolution, which was subsequently adopted, reads as follows:

> WHEREAS, the rapidly increasing amount of forest and grass fires within the Commonwealth has vividly brought to our attention the destruction of valuable timber, wildlife, wildlife food supply and cover, the depletion of the natural water table, and danger to human life and property, and,
>
> WHEREAS, various State and Federal departmental employees working nearby are not available in forest and grass fire emergencies without loss of full time compensation, therefore,
>
> BE IT RESOLVED: That the Pennsylvania Federation of Sportsmen's Clubs urge that a cooperative effort between all State and Federal Departments having men working near where forest and grass fires originate, that said employees be authorized to extinguish said fires, with uninterrupted compensation from their respective Departments.

Ray Armstrong brought up the subject of the raccoon season, pointing out that he felt that for the northwestern division a season beginning November 1 and ending December 31, with a two a night, fifteen a season limit, would work out very satisfactorily.

Charles Nehf of Allentown presented a motion to request the Game Commission to enlarge the scope of its educational program to include more exhibits. The motion, which was seconded by Rev. Darlington R. Kulp, Second Vice-President of the Federation, was unanimously adopted.

Wilbur Cramer was asked to explain the plans for the Training School. He stated that 2,356 brochures were sent out to inquiries accumulated since the last class was enrolled, that 647 applications were requested and mailed, that 370 applications were filed of which a considerable number were rejected because they could not meet the requirements, and that around 300 were on the eligible list for the examination, of which 69 were deputies.

Some one raised the question as to whether or not the Commission planned to proceed with its redistricting program, and Mr. Gordon, in answer to the query, said the Commission had decided to put it into effect as of June 1. Mr. Leffler also discussed the new program, pointing out that it should be particularly advantageous to the sportsmen because under it they could report violations to any field officer rather than waste time trying to contact a certain one, and that it will assure all section of the State more and better service.

The matter of purchasing bulldozers and other equipment for improving game food plots was raised by Chairman Hanes, who thought that Pittman-Robertson funds could be used to acquire this machinery. Mr. Morton, Chief of the Division of Land Management of the Commission, explained that the Commission had already approved — in fact had already purchased — tractors for carrying on this work and that he felt certain that as additional equipment becomes necessary it would undoubtedly approve its purchase.

Mr. R. S. Cooper, while discussing the ethics of sportsmanship, said that an example should certainly be made of the fellows who tear down gates and bars leading into roads on the State Game Lands.

One of the confreres inquired as to when the State was going to confirm the newly appointed members of the Fish and Game Commissions, and his query subsequently led to unanimous endorsement of Commissioners Lamberton and Gipple, whose terms have expired, for reappointment.

Dr. Banker asked that the Chairman of the Forestry Committee contact the Department of Forests and Waters to ascertain what action they are going to take on the recommendations made by the Federation at its last meeting, and that the Committee notify the Secretaries and Directors of the various divisions before the next meeting in July.

Ray Armstrong suggested that the Secretary write the Chairman of the Legislative Committee to prepare bills covering all legislative action recommendations made by the Federation during the past three years for submission before the end of the session.

Charles Nehf, Secretary of the Predator Animal Control Study Committee, was asked to make a report on the progress being made by that body. He reported that to date all the sub-committees were functioning and that as soon as Chairman Dean Watts felt that sufficient time had elapsed for them to pur-

(Continued on Page 26)

Wildlife Insurance For The Americas

The United States, acting through the Department of the Interior, is ready to carry forward its part under the Inter-American Convention on Nature Protection and Wildlife Preservation recently ratified by the Senate.

Seventeen American republics, including the United States, now have signed the pact to protect nature and preserve wildlife in the Western Hemisphere. The treaty calls for the establishment and extension of national parks, nature areas, and similar reservations which will preserve natural wonders, exceptional scenery, or places of outstanding historic or scientific interest. It also provides for the protection of wildlife in these areas.

Principal beneficiaries under the pact will be the numerous species of migratory birds that go back and forth between the two continents. These include the Hudsonian curlew, upland plover, and other shorebirds; bobolink, nighthawk, barn and other swallows; most of the wood warblers and vireos; several thrushes; orioles; and many species of the large family of sparrows.

Mammals also will receive consideration under the new pact. Several forms of vanishing or depleted species that will particularly benefit under conservation measures include the huemal, a deer that inhabits the Andes, the brocket, the rare pudu, and other species of South American deer that have been greatly reduced during the last century; the ocelot; the wild chinchilla; and the tapir.

Aside from sentimental reasons, these birds and mammals are of economic value. Food habits investigations have shown, for example, that many song and insectivorous birds are economically important in man's warfare on insect and wood pests.

Ratification of the treaty, insuring participation in the program by the United States, was cited by Secretary Harold L. Ickes as one of the most significant steps taken in recent years toward preserving scenic areas and wildlife. He was joined by Dr. Ira N. Gabrielson, Director of the Fish and Wildlife Service, and Newton B. Drury, Director of the National Park Service, both of whom pledged cooperation of their agencies. The two services will carry out the program within the United States.

Photo U. S. Fish and Wildlife Service

Trumpeter Swan. Red Rock Lakes National Wildlife Refuge, Montana.

Gabrielson Counts on Wildlife Gain

Pointing to the remarkable results that have been obtained in the restoration of North America's migratory birds as an example of what may be done through international cooperation, Dr. Gabrielson asserted, "We have every reason to be optimistic over the results of an international undertaking that includes the entire hemisphere and becomes effective before unwise exploitation has become general."

The migratory bird treaties with Canada and Mexico, Dr. Gabrielson said, made possible the national program for the restoration of North America's migratory birds. Equally beneficial effects can come from hemispheric cooperation on the conservation of all forms of wildlife, he added.

Dr. Gabrielson was particularly hopeful that the signing of the Convention would lead to negotiations for treaties with Latin American nations to preserve migratory birds along the same lines as the present treaties with Mexico and Canada.

Under the articles of the Convention, the contracting governments agree to assist each other by "lending" biologists for research and field studies. Dr. Gabrielson indicated that the Fish and Wildlife Service stands ready to lend any of its staff whose technical skill may be helpful to any neighboring country.

Drury Sees Hemisphere Park System

The treaty should lead to close, effective cooperation between park officials in the creation and preservation of a system of inter-American parks representative of the finest natural characteristics of the Western Hemisphere, Newton B. Drury, Director of the National Park Service, said.

In addition, he added, there should be an increase in inter-American use of the parks of all the countries. "This will result in just the sort of improved hemisphere relations in which we all are so interested. We shall get to know each other better, and mutual understanding and respect will be one of many benefits."

Also significant, it was emphasized, are the treaty's specific provisions for the protection of wildlife in national parks. Such an area, when properly selected and administered, preserves a complete natural environment; and wildlife is an important factor in this environment. The treaty can be helpful in the efforts of national park wildlife authorities to prevent the threatened extinction of several species, particularly those birds which migrate between the Americas.

In signing the treaty, the several republics indicated their acceptance of certain standards which will govern the selection and preservation of national park areas and require conformity to the same high concepts of the use of land and resources.

The treaty states that the "expression 'national parks'" shall denote:

> "Areas established for the protection and preservation of superlative scenery, flora and fauna of national significance which the general public may enjoy and from which it may benefit when placed under public control."

"Nature monuments" are described as:

> "Regions, objects, or living species of flora or fauna of aesthetic, historic or scientific interest to which strict protection is given. The purpose of nature monuments is the protection of a specific object, or a species of flora or fauna, by setting aside an area, an object, or a single species, as an inviolate nature monument, except for duly authorized scientific investigations or government inspection."

That there will be new national parks is indicated by Article II, Nos. 1 and 2:

> "1. The Contracting Governments will explore at once the possibility of establishing in their territories national parks, national reserves, nature monuments, and strict wilderness reserves, as defined in the preceding article. In all cases where such establishment is feasible, the creation thereof shall be begun as soon as possible after the effective date of the present Convention.
>
> "2. If in any country the establishment of national parks, national reserves, nature monuments, or strict wilderness reserves is found to be impracticable at present, suitable areas, objects or living species of fauna or flora, as the case may be, shall be selected as early as possible to be transformed into national parks, national reserves, nature monuments or strict wilderness reserves as soon as, in the opinion of the authorities concerned, circumstances will permit."

Article III calls for area protection and provides for recreation:

> "The Contracting Governments agree that the boundaries of national parks shall not be altered, or any portion thereof be capable of alienation, except by the competent legislative authority. The resources of these reserves shall not be subject to exploitation for commercial profit.
>
> "The Contracting Governments agree to prohibit hunting, killing and capturing of members of the fauna and destruction or collection of representatives of the flora in national parks except by or under the direction or control of the park authorities, or for duly authorized scientific investigations.
>
> "The Contracting Governments further agree to provide facilities for public recreation and educa-

(Continued on Page 32)

SPORT AND NATIONAL DEFENSE

The target shooters today, comprising an army of over a million men, women, and children, are year-round shooters.

TEN MILLION Americans shoot regularly and shoot well! Today they enjoy a sport that harks back to our frontier days; keep alive an American tradition of straight shooting, literally and figuratively; and quietly, without fanfare of sports page publicity, take part in a "play-it-yourself" game that boasts more actual participants than any other sport. On the target ranges, the skeet and trap grounds or in the hunting fields, this largest of all sportsmen's groups at the same time represents a vast army already trained in what continues to be one of the first essentials of military might—deadly individual marksmanship.

The impetus given the sport of rifle and pistol shooting in this country during the last year may not, in many minds, give the true picture of the rise in popularity of this fascinating activity, since in that time we all have become much more military conscious. Yet, the truth is that the entire sport, in all its varied phases, has been steadily rising comthat probably will stand up against that of paratively unnoticed since the early twenties.

There is a record in a rise to popularity any other sport, because it was not so many years ago that the ability to shoot straight was nearly a lost art—lost by the American people after it presumably had done its job in the winning of our freedom and our new frontiers.

These ten million Americans burn up in the neighborhod of 40 million dollars worth of ammunition in a year and the value of all their privately owned rifles, pistols and shotguns may well reach ten times that amount. To top that, they create a market for the sale of more than a million and a half shooting irons in a year's time.

That all sounds fantastic enough, but it also is quite generally known that there are more shooters in the country than there are members of the much-publicized golfing fraternity.

While hunting is conceded to have a vast majority of enthusiasts to whom seven million licenses are issued by the states each year, the highly specialized sport of target shooting may well lay claim to the most phenomenal improvement of all, both in the number of participants and in the quality of the activity which it affords.

The target shooter of today, engaged in one of the most standardized of the shooting phases and in one of the most scientific of all sports, is today a year-around shooter. And this army alone of men, women, and children, too, numbers better than one million, most of whom are governed either directly as an individual member or indirectly as a member of an active shooting club affiliated with the National Rifle Association of America.

It is this Association, organized seventy years ago for the purpose of promoting civilian marksmanship, and the comprehensive policy of assistance by our War Department through the N. R. A. that has been responsible for the growth in popularity in target shooting. Not only has this patriotic, nonprofit organization surmounted the obstacle of standardization and narrow-minded legislation aimed at restricting the use of guns by sportsmen, it has developed a competitive interest that is a far cry from the turkey shoots of our frontier days or even the little club shoots which were popular after the Civil War.

In those days, the contestants could be seen firing at almost anything—a turkey tied to a stake, crossed pieces of charred wood, a knothole, or in later days, cumbersome cast iron targets that were different for nearly every club.

Today, under the sponsorship of the National Rifle Association, there are held annually about 300 registered rifle and pistol tournaments in all sections of the country which draw 20,000 competitors who, in turn, fire more than 7,000,000 shots for record alone on the minutely-measured targets which give the true picture of the shooters' comparative ability whether the shooting is done in California or New York.

But, that is not the whole program. There are also hundreds of non-registered tournaments, club shoots, and the indoor gallery leagues in the winter which enable the great army of shooter-sportsmen to follow through on their chosen hobby in all seasons of the year.

All the same, with the coming of spring these thousands of hopefuls, their equipment and new gadgets long since checked and rechecked, pour onto the outdoor ranges to make ready for the approaching regional tournaments and for the late summer National Matches, the country's biggest sporting event.

Here, in these National Matches of both rifle and pistol staged annually at the big Ohio National Guard range at Camp Perry, 4,500 marksmen from everywhere gather for a three-week shooting holiday to gain valuable instruction and a possible national title. This huge assembly is estimated to fire in the neighborhood of two million rounds in the .22 caliber, .30 caliber, and pistol fields.

The largest and most modern of those fields, the .22 caliber or small bore, is indeed the most highly scientific and technical of all. The very size of the bullet and the distances at which it is fired, 50, 100 and 200 yards, would indicate this, and the large number of perfect scores turned in by any relay on the firing line would indicate the success of this union with modern science.

But shooting is more than just one of America's greatest sports. It is a factor which fits precisely into the current scheme of military preparedness, due largely to the cooperation of our War Department with the N. R. A., and the successful stamping out of proposed legislation which would have shackled the sport here as it did in other nations now seriously in need of trained marksmen.

One factor in our National Defense program cannot be overlooked. Those ten million enthusiasts who have burned up millions of dollars worth of ammunition and purchased millions of dollars worth of equipment have, in themselves, kept alive a prosperousc modern industry of small arms manufacture with highly-geared factories and machinery along with full complements of experienced and trained workers. These plants can be, and already have been converted quickly into defense industries to supply our army with small arms equipment. A prosperous American sport has thus kept alive a vital line of production through the competition it afforded the manufacturers, the inventors, the suppilers of certain necessary materials, and all the rest.

And, all of that is in addition to those same ten million shooters who won't have to be taught those basic principles of rifle marksmanship and safety and who, in thousands of cases, are qualified by the War Department as military instructors upon completion of the Camp Perry instruction course.

Back on the production side, we can see from Army Ordnance reports that the result has been of this nation's sportsmen keeping the firearms industry on its toes. The Army's new standard infantry arm, the Garand, not only is being produced in the government's Springfield Armory, but in a large commercial plant as well which, through its swift conversion to production of war materials, has enabled Garand production to

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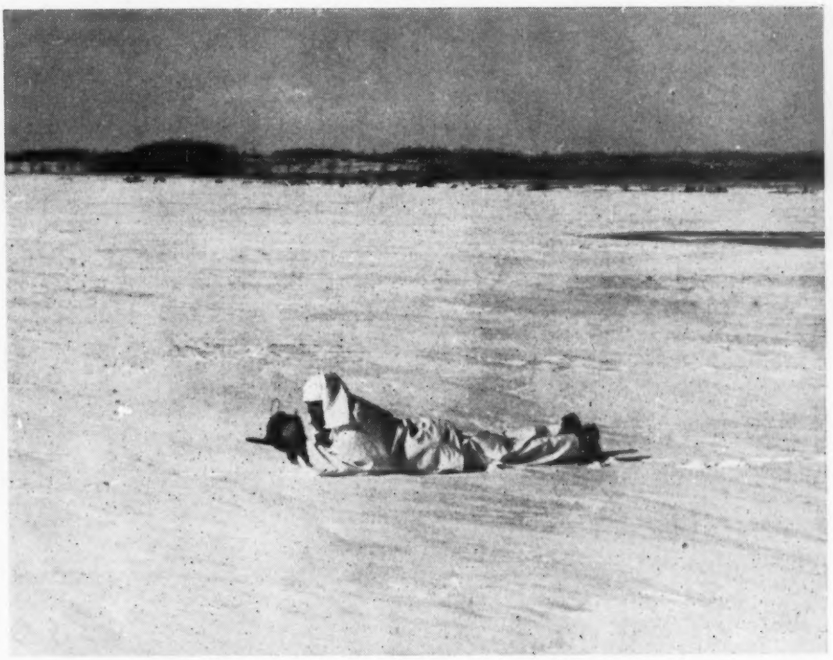
FROM BEHIND THE CAMERA

By C. GORDON KRIEBLE



Eighteen inches of ice covered with a foot of snow and a subzero gale failed to cool our desires to secure geese photos. The white garb served us well.

FEW places in the State offer the endless picture taking possibilities that we find at the Pymatuning Refuge near Linesville, Crawford County. Season of the year, type of weather, and all the other factors that enter into providing the photographer with a variety of wildlife subjects can be thoroughly appreciated in this area.

The month of February was about spent when I rolled up to Game Protector Burt Oudette's headquarters. A short time later we were comfortably sprawled in front of a log fire discussing picture taking possibilities at that time. We weighed item after item against the weather and decided that the pictorial possibilites offered by a flock of about 65 Canada geese which were spending most of their time near the game refuge spillway was undoubtedly our best bet. These birds had been getting feed at that spot quite regularly and consequently were not as wild as recent migrants would be. The spillway was the only open water to be found within many miles and the geese were reluctant to leave that spot despite frequent disturbances.

Outside the house a frigid wind shrieked and howled, but lazing there in front of a friendly fire I felt that at last I might have an opportunity to secure certain geese pictures which I had tried for so many times in the past without success.

The next morning we saw no let-up in the terrific wind velocity and heavy gray clouds skudded low above the lake. Now and then they released a snowy barrage that reduced visibility to a comparatively few yards. Photography was entirely out of the question. Anxious to view the situation we went out and flushed the geese in order that I might become familiar with their actions around this lone water hole.

A couple of days went by before light conditions permitted any photographic activity. The first few long cold hours spent out on the ice produced a few shots, but far from what we wanted. Each attempt, however, carried with it the strange thrill that a water fowler experiences when these graceful nomads of the air fly close to the observer's hiding place.

With slow rhythmic wing beats the flock would circle the area and then set out in a straight line for a flight of a couple of miles. Now and then their aerial jaunts would take them well out of sight, but each time they would return to see whether or not the coast was clear for a safe landing.

Crouched in the shelter of driftwood which was scattered along the shore, we would watch anxiously as the volume of their honking increased. With fingers numbed by the cold I would fumble for the shutter release, hoping the birds would draw close enough overhead for the opportunity I had so long awaited. Wheeling slowly overhead the birds would frequently spot me before I was able to gain a shot, then with a wild swishing of their wings, they would set out across the wind swept lake on another flight and their honking chorus would soften, then fade out in the distance

After a number of these failures I decided to employ the white camouflage used so successfully by the Finnish Ski Troops as well as some of my crow hunting friends. A few yards of cheap cotton cloth (and a wife who was handy with the sewing machine) soon provided the garb.

From here on it was a different story, for by flushing the birds and then lying motionless on the snow covered ice, I managed over a period of a few days to at least obtain many of the pictures which had eluded me for a number of years.

Along with the Canada geese there were five swans that visited the same open water. Four were whistling swans which had been

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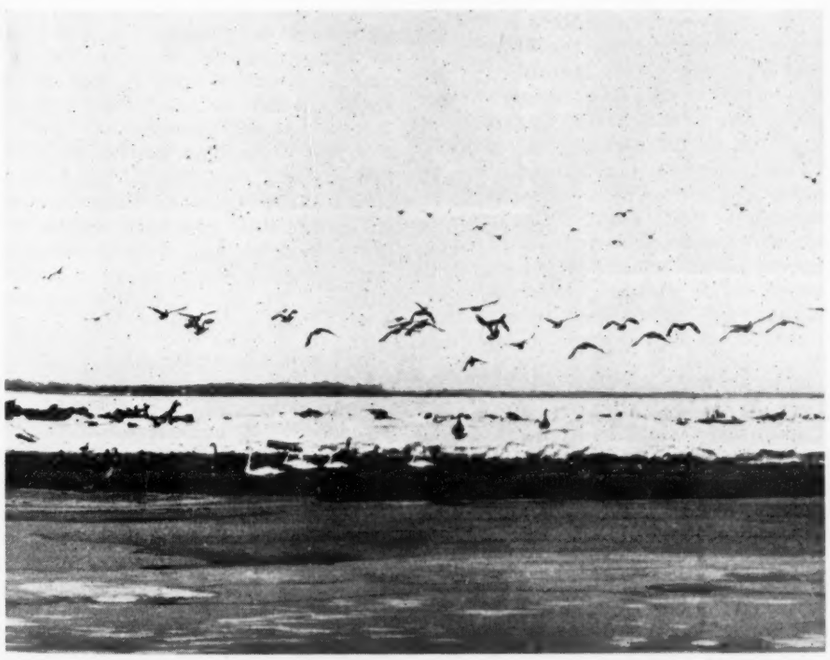


Canada geese, ducks and swans frequented the only open water in the lake.

The youngsters really took their planting seriously.

Young Trees And Youngsters

AN order for 10,000 pine seedlings had been placed and delivery was expected the latter part of April. Securing seedlings and planting seedlings are two different things. With so many sportsmen employed at this time on Saturdays, here was an excellent opportunity to offer the youngsters in the community a chance to take some active part in a conservation program. "Jake" Phillips, popular president of the Tri-County Sportsmen's Association which includes Dauphin, Northumberland, and Schuylkill Counties had assumed the responsibility for the planting of these saplings.

"Jake" has a way of getting things done and he wasted no time in securing for himself a promotor in the form of little Doris Martz, of Dalmatia. Doris is but 9 years old, but she was perfectly willing to join in with the spirit of the entire movement and in the few days that followed she contacted most all of her classmates as they went to and from school on the bus.

She had been asked to secure about 20 of her classmates, but when the all important day of April 26 rolled around Doris had been successful in getting the cooperation of about 35 students. Nearly all of these students were the children of local farmers and landowners and they were joined by a group of Scouts from Herndon under the leadership of Bob Bilman, Scoutmaster.

The activities which took place that day would have proven to be an inspiration to the most hard-bitten pessimist. One of the older boys put in his appearance with a team of horses and a plow and proceeded to plow furrow after furrow along the hillside.

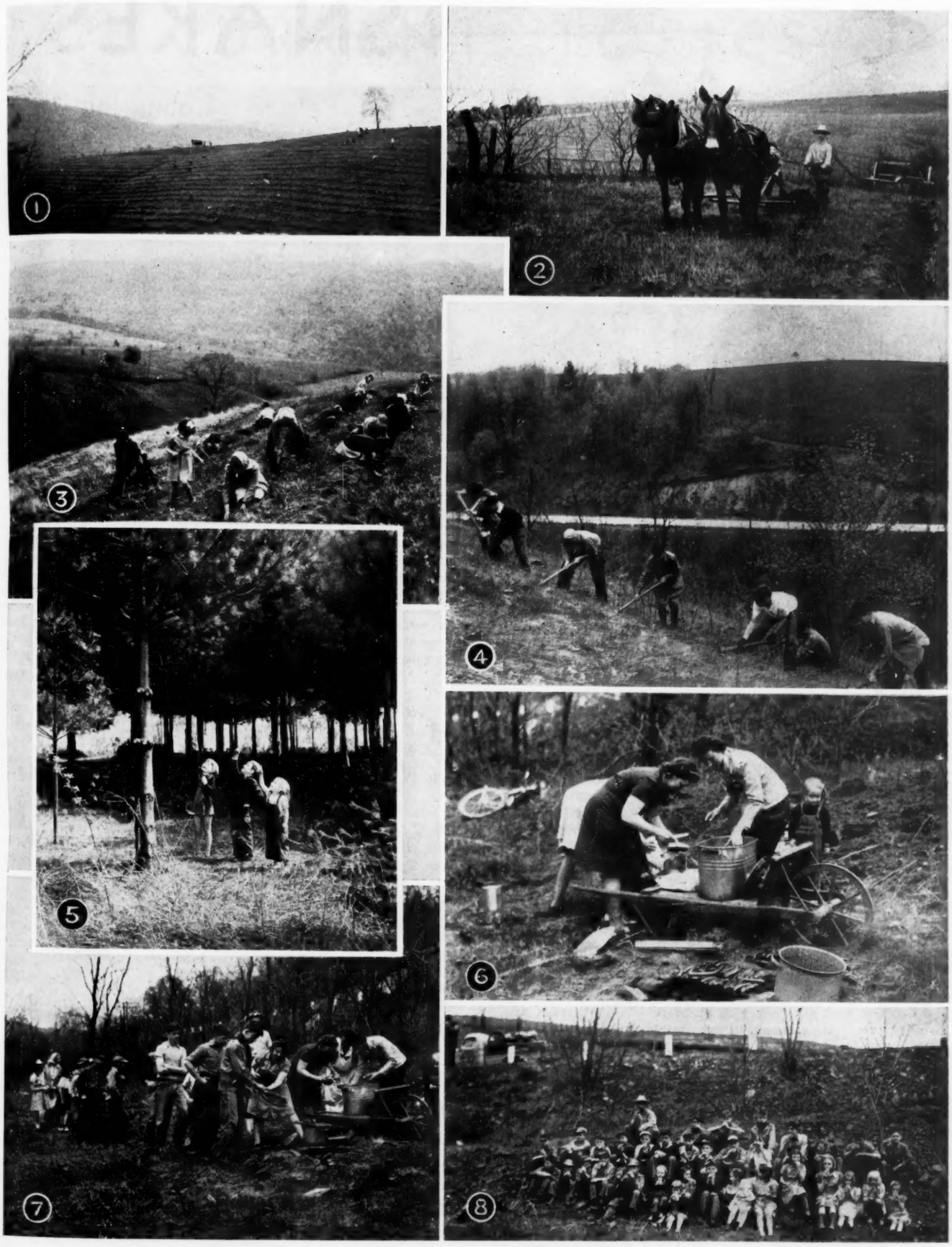
Following a brief period of instruction the majority of the youngsters scattered out along the furrows and planted seedling after seedling. While the plowing and planting was taking place on one hillside some of the older boys, armed with picks and grubbing hoes, were busily engaged digging small holes in which seedlings were to be placed on an opposite hillside which was too steep and too rough to be plowed. Time passed so quickly for these enthusiastic youngsters that noon time rolled around almost before they had been aware of it.

Scores of hot dogs had been prepared over a glowing bed of wood coals by the wives of some of the men present. The rate at which the weiners disappeared was enough to give a lot of older folks dyspepsia. Two buckets of lemonade vanished along with the hot dogs and after a few minutes of relaxation the youngsters tackled the job once more. A little later in the afternoon a half-pint of ice cream was served to each youngster and proved to be an additional inspiration. By supper time 8700 evergreen seedlings had been planted by these enthusiastic boys and girls. The remainder were planted the next day by the older members of the local club.

There was undoubtedly far more accomplished on that Saturday than the planting of 8700 evergreen seedlings for as each youngster left for home he was in a happy frame of mind. He was pleased with the fact that he had an opportunity to take part in a really worthwhile enterprise. Each one had a pretty good idea of what the future would hold for these seedlings because they were all familiar with another stand of pines nearby that had been mere seedlings twelve years before. The little group rightfully anticipated equal success as additional compensation for their efforts.

To be sure an undertaking of this sort is not a new thing by any means, but it is an enterprise that can be, and certainly should be, undertaken by every real sportsmen's organization throughout the State of Pennsylvania.

There was far more planted that day than 8700 seedlings, for in the mind of each youngster present there was planted the seeds of appreciation of wildlife and wildlife conservation, and all this was accomplished by one group of sportsmen at a total cost of fifteen pounds of hot dogs, two buckets of lemonade and twenty quarts of ice cream.



1. Youngsters fanned out over the hillside; 2. Two horse power plow; 3. Busy in the furrows; 4. The older boys dug holes in the steeper hillsides; 5. The youngsters inspecting the reward that twelve years' growth will bring; 6. The "dogs" were grilled over a bed of coals; 7. "Come and get it." They did; 8. Missing—15 pounds of hot dogs and two buckets of lemonade..

Don't expect to get away with the hoop snake story.

SNAKES

By A. B. Champlain

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SNAKE days are here again and scores of persons will have tall tales to tell of reptilian encounters along lonely roads, forest trails, and open farmlands. Before these experiences are bruited about too much, we are going to let you in on a few fallacies concerning snakes and give you some facts to make the stories sound more plausible.

Don't expect to get away with the hoop snake story. The fable runs something like this. Grandpa, or it might have been Cousin Bill, who was on his way home in the good old days, was chased down hill by a hoop snake. He dodged behind a tree while the snake struck and stung the tree with the end of its sharp tail. Of course, the tree is supposed to have died. Don't believe this. No snake has a sting on the end of its tail, nor can any snake put its tail in its mouth and trundle down hill.

People are mistaken in many of their beliefs and fears about snakes. It has been my experience that no serpent, be it copperhead or garter, ever chases or attacks human beings without provocation. I have yet to run across any snake that did not prefer to mind its own business and slip away unmolested. Snakes do not charm people or birds; they cannot spit out poison, nor do they sting with their tongues.

The tongue of a snake is worth special investigation if we have courage enough to pry into the creature's mouth. This forked organ is soft and well supplied with blood vessels and nerves and may be withdrawn into a sheath in the snake's mouth when not in use. While the forked tongue is generally considered to be an organ of touch or feeling, it is evident to me that other senses function in its use; such as taste, smell, and hearing.

Snakes do not strike from a truly coiled position, nor can they spring or jump from the ground at their victims. They merely strike from a zigzag coil, which is like the letter "S" placed horizontally. Snakes can only reach the distance that they are able to strike out from this double curve. This distance is rarely more than half the length of the body.

Do not believe the yarn that poisonous snakes can be irritated to such an extent that they will bite and kill themselves. Some reptiles in danger or annoyed writhe about, but there would be no point in their biting themselves. In fact I observed a rattler bite a black snake when the former was dropped suddenly into a cage with the black. Not only did the black snake show no ill effects from the bite of the rattlesnake, but the two became good friends in captivity and lived together in harmony.

It is also a fallacy to believe that snakes are blind during dog days or that some snakes will milk or suck cows. This latter feat would be impossible for any serpent to perform and such stories are pure fabrication without any foundation on fact.

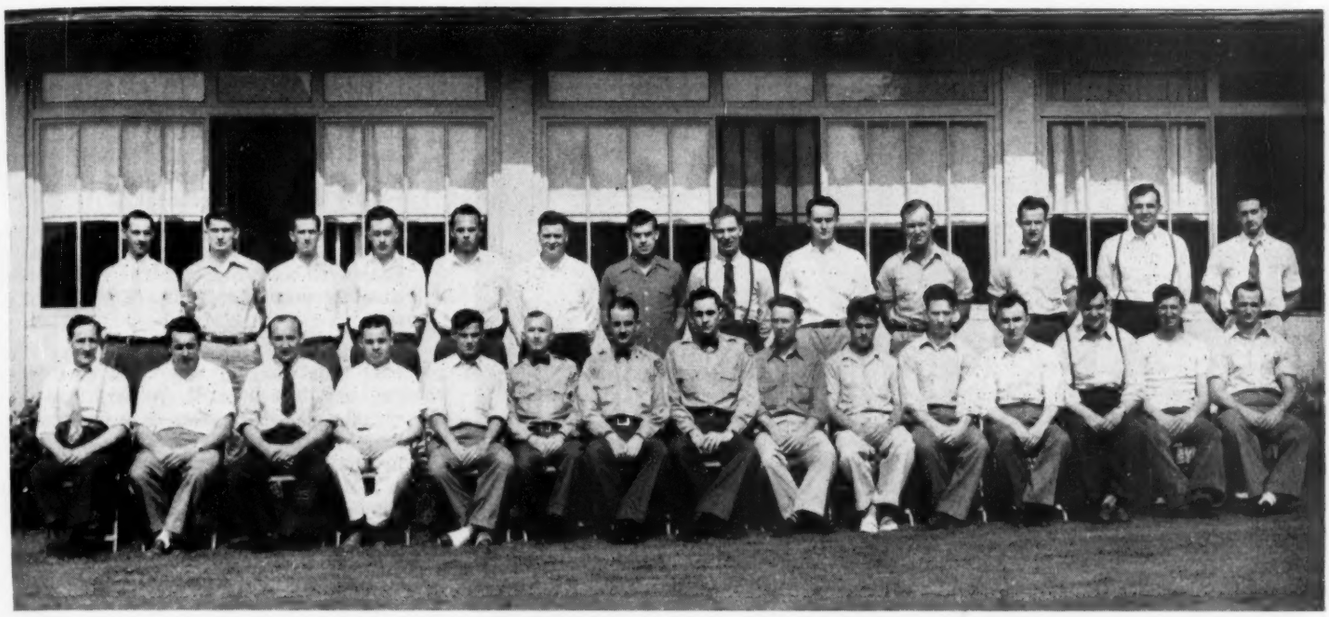
Now, last but not least of the questionable accomplishments of serpents, and one which seems to have more champions than any other snake legend, is the story in which the mother snake swallows her young to protect them from danger. I have seen no authentic records nor have I met with an observer who could satisfy me concerning the proof of his observation. There is always an incomplete or indefinite element that leaves the story in the myth class. Since some snakes bring forth their young alive, the person killing a mother snake in late summer and finding living young within her may conclude that they have been swallowed.

It is our opinion that the horror or aversion with which snakes are regarded by most people is the result of incorrect knowledge such as we have enumerated, or the unpleasant and sometimes serious effects of the bite of the poisonous kinds. As you are no doubt aware, we have but two poisonous species of serpents commonly found in Pennsylvania—the rattlesnake and the copperhead. The remainder are perfectly harmless. In fact about 80% of all North American species of snakes are harmless. Of course, some of them encroach upon our economies and we list them among our public enemies. Water snakes eat fish. Some kinds eat toads, while others get a bird or two along with mice and other destructive rodents. We caught a blacksnake that had cleaned out a grouse

(Continued on Page 32)

Its tongue is worth special investigation.

CURRENT TOPICS



Staff and Students. Students Lester E. Sheaffer and Lewis D. Mostoller absent when photo was taken.

Training School Gets New Class

Twenty-seven men who scored highest in the recent written and oral examinations for entry into the Pennsylvania Game Commission Training School have been selected and began their nine-month course on June 7. Three applicants were selected from each of the seven Game Divisions of the State, and six additional ones were enrolled from the remaining eligible candidates to compensate for any losses caused by the draft, failure to qualify, etc. The names of these successful candidates, the district from which they hailed, as well as other pertinent information concerning them follows:

Division A: William Trexler, Macungie, Lehigh County. Age 27, single. Eight years of Grade School. Mr. Trexler, a Deputy Game Protector since 1937, up until the time of his successful entry into the school was a machinist with the Mack Motor Corporation, Allentown.

Clair W. Dinger, Millersburg, Dauphin County. Age 30, married. At the time of Mr. Dinger's matriculation he was employed as an electrician at the Middletown Air Depot. Mr. Dinger was a High Schol graduate and a graduate of the I. C. S. Course in Electrical Engineering.

Daniel H. Fackler, Mt. Joy, Lancacster County, age 28, single. Employed as a clerk by the Shock Independent Oil Company, Mt. Joy. Mr. Fackler graduated from High School and received his B.S. degree at the Millersville State Teachers' College.

Jackson S. Kepner, Millersburg, Dauphin County, age 27, single. High School graduate, formerly employed as a clerk.

Division B: Joseph L. Budd, Beach Lake, Wayne County. A Deputy Game Protector since 1936, Mr. Budd has been working for the Department since 1939 in charge of Game Lands No. 159 in Wayne County on per diem basis. He is 30 years old, single, and was employed as a laborer. A High School graduate, Mr. Budd also received a 2 year certificate at Penn State where he studied Agronomy.

Temple A. Reynolds, Montrose, Susquehanna County. Mr. Reynolds was also a Deputy Game Protector since 1939. He is 34 years old, married, has one son, and was employed as a theatre manager. Mr. Reynolds graduated from High School, had one semester at the University of Maryland, and a member of the Int. Accountant's Society.

Harry D. Defina, Hazleton, Luzerne County. Age 24, single. Was a partner in Defina Brothers, Gasoline Dealers, of Hazleton. Mr. Defina is a High School graduate and took a Penn State Extension course in Physical Testing.

Division C: Only two applicants from Division "C" passed the various tests. Fred L. Meyers, Muncy Valley, Sullivan County. Age 33, single. Employed as a teacher and coach in the Renovo High School. Attended Grammar School 7 years, Williamsport Dickinson Seminary 4 years, Williamsport Dickinson Jr. College 3 years, William & Mary College 2 years. B.S. degree in Science and Physical Education.

John I. Hendricks, Sunbury, Northumberland County, age 31, married with 2 children. Employed as a Supervising Clerk in charge of fruit and produce in the Weiss Pure Food Warehouse of that city. High school graduate; C.M.T.C., 3 years; Franklin Institute, 1 year. Civil Service.

Division D: Paul L. Failor, Mechanicsburg, Cumberland County, age 26, married, with one son and one daughter. Employed as a crane operator for the Bethlehem Steel Company, Steelton. Mr. Failor is a High School graduate.

Lester E. Sheaffer, Ickesburg, Perry County. Age 28, married. School Teacher. Graduate of High School, also Shippensburg S.T.C. 2 years.

John P. Eicholtz, Gettysburg, Adams County. Mr. Eicholtz, a Deputy Game Protector since 1939, is 29 years old, married, has a wife and daughter, and was employed as a transitman by Gibbs and Hill, Inc., of that city. Mr. Eicholtz is a High School graduate and attended Gettysburg College 3 years, having studied Electrical Engineering.

Division E: George H. Burdick, Smethport, McKean County, a Deputy Game Protector since 1936. Mr. Burdick is 35 years old, has a wife and four children. He was emplyed as a laborer by the Armstrong Service at Emporium. He is a High School graduate, also took a 1-year extension course at Penn State Extension in Natural Resources.

Mr. William R. Overturf, Punxsutawney, Jefferson County. Mr. Overturf, a Deputy since 1936, is 33 years of age, single, and has been employed since 1938 as caretaker in charge of the Commission's Training School. He attended High School for three years.

James A. Brown, Renovo, Clinton County, 30 years of age; wife and one son. He is a Science Teacher in the Renovo Public Schools. Mr. Brown is a High School graduate, and a Penn State graduate with B.S. degree in Education.

The additional three applicants selected from this Division are:

Edward R. Richards, Grampian, Clearfield County. A Deputy since 1936. Mr. Richards is 32 years old and is married. Since February 1941 he has been employed by WPA.

(Continued on Page 16)

CURRENT TOPICS

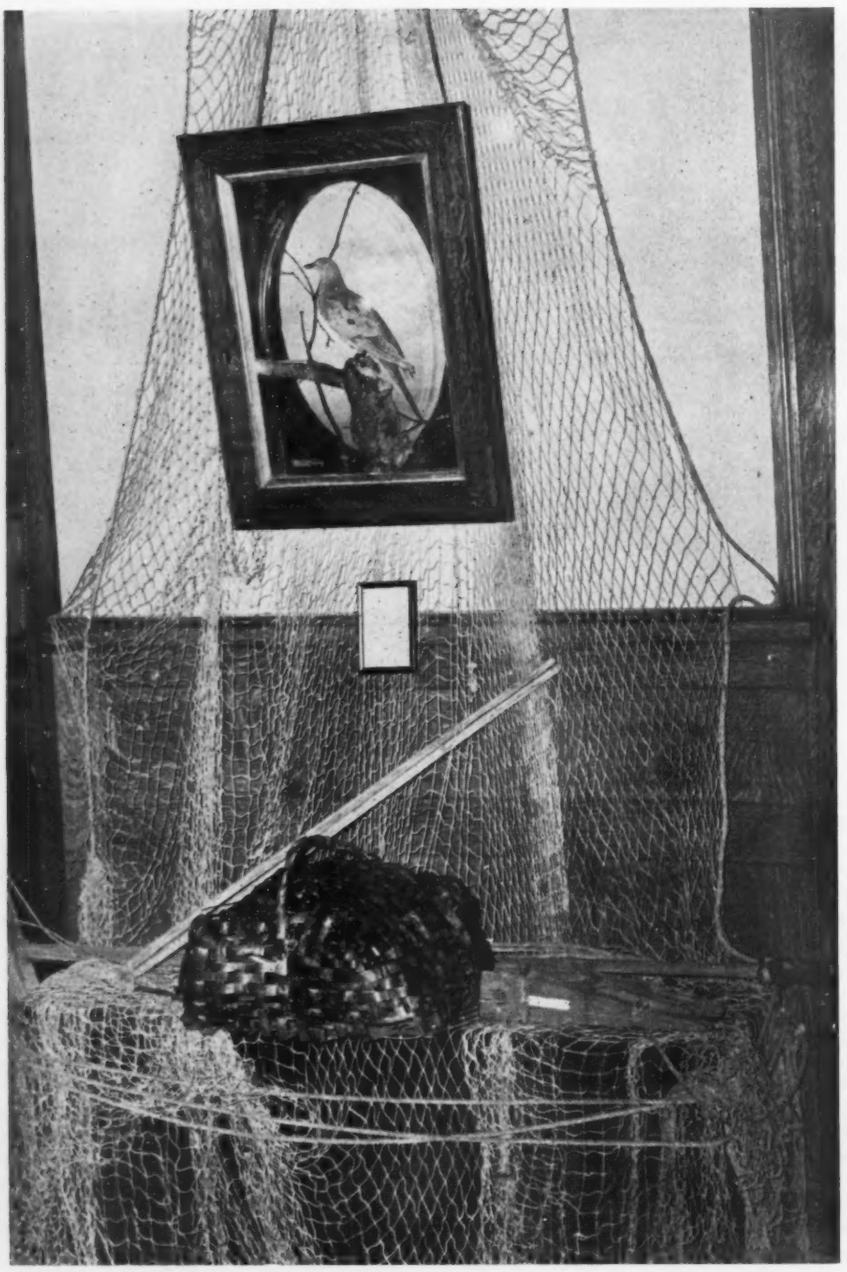


Photo Williamsport Sun

Last Passenger Pigeon killed in Lycoming County. Mounted by Charles H. Eldon, Williamsport. Displayed in new museum of the Lycoming Historical Society with complete outfit for netting pigeons.

TRAINING SCHOOL GETS NEW CLASS

(Continued from Page 16)

at DuBois. Prior to that time he was with the H. & W. Refactories Companies, Woodland, Pa., as a clayminer. Mr. Richards attended Grammar School for 8 years.

Allen T. Studholme, Smethport, McKean County, age 27, single. Recently employed as a Research Assistant by the Game Commission on a per diem basis. Mr. Studholme is a High School graduate, Kiski Preparatory 1 year. B.A. in Letters and Science at the University of Wisconsin, and will receive his M.S. degree at Penn State College this June in Wildlife Management.

Jack L. DeLong, Logantown, Clinton County, age 28. Wife and two sons. Employed since 1939 as a forest ranger for the Department of Forests and Waters. He is a High School graduate; studied Civil Engineering at Penn State 1 year.

Division F: Ivan E. Burkley, Cambridge Springs, Crawford County. A Deputy since 1937, Mr. Burkley is 39 years old and has a wife and two chlidren. Employed since 1934 as a U. S. Postal Dispatcher. He attended Grammar School 8 years and Spencerian Business College 1 year.

Elmer D. Simpson, Route 6, Waterford, Erie County, age 32, married. Employed as Gasoline Retailer and Mechanic, also Justice of the Peace. Mr. Simpson is a High School graduate, attended Penn State 1 year, Engineering. Also a Standard Extension University course—Secretarial.

Paul A. Brown, 580 South Seventh Street, Sharpsville, Mercer County. Age 26, married. Employed as Storeroom Clerk with Sharon Steel Corporation. He is a High School graduate.

Division G: Six candidates were selected from this division. The first three include Harold C. Kornman, Rochester, Beaver County. Age 23, single. Mr. Kornman has been employed since 1939 as a car repair helper by the Pennsylvania Railroad Company. He is a High School graduate; also completed a course in engineering and drafting under a Penn State Extension Night Course.

Lewis D. Mostoller, Stoyestown, Somerset County. Age 23, single. Working since 1935 with the Carnegie-Illinois Steel Corporation as a layout man. Mr. Mostoller is a High School graduate.

The last three include Clifford L. Ruth Hibbs, Fayette County. Age 29, married. Employed since 1936 as a miner for the H.C. Frick Coke Company. He is a High School graduate, University of Alabama 1 year, Michigan State College 3 years. B.S. degree in Wildlife Management.

Martin L. Shaffer, Boswell, Somerset County. Age 24, single. Formerly employed as a machinist by the National Radiator Company, Johnstown. Mr. Shaffer is a High School graduate.

Robert B. Berkey, Berlin, Somerset County, age 30. Wife and one daughter. Employed as a clerk in the Hunkin-Conkey Construction Company, Cleveland, Ohio. He is a High School graduate, also studied at the University of Pittsburgh 2 years. (Engr. & Lib. Arts.)

George W. Miller, Etna, Allegheny County. A Deputy since 1935, Mr. Miller is 31 years of age, and has a wife and one son. Employed as a Police Officer for several years by the Pennsylvania Railroad Company, and since 1937 as a painter by R. P. White, Pittsburgh. Mr. Miller is a High School graduate, also attended Public Service Institute police course 3 months.

When the Commission first announced its intention to open the school some months ago, 306 persons filed applications and were invited to take the examinations. However, only 239 took the first part, or written tests of whom 50 were called in for part 2, the oral examination. Out of the fifty, 8 failed to make the composite grade of 70% or over, 14 were rejected by the doctor, and 1 withdrew. Only the 27 who enter the school June 7 qualified, and although from all walks of life, they are men of a very high character, physical ability, and enthusiastically interested in the work of the Game Commission.

A composite analysis of the 27 successful candidates shows that 16 are married, 11

CURRENT TOPICS

single, and 8 were Deputy Game Protectors, one of whom was employed regularly on a per diem basis by the Commission. In vocations they represent 4 clerks, 3 school teachers, 2 machinists, 2 gasoline dealers, 2 miners, 1 theatre manager, 1 forest ranger, 1 student of wildlife management, 1 caretaker, 1 laborer, 1 transitman, 1 crane operator, 1 U. S. Postal Dispatcher, 1 mechanic, 1 police officer, 1 electrician, and 1 layout man.

RABBIT AND PLANE HAVE ENCOUNTER

On April 30 a rabbit tangled with an airplane on the Greensburg airport and the plane came out second best.

When the ship came in for a landing, Instructor Clyde Hauger and Joe Squires, Duquesne University football player and student flier, felt a bump, "as if something was coming up through the bottom of the plane."

After the plane was landed, an invesigation showed a rip in the fabric on the bottom of the ship's fuselage about two feet long.

The fliers were puzzled until, while taxiing to the hangar, they saw the rabbit lying on the field. As they neared the animal, it hopped to its feet and raced off into the woods.—Huntingdon Daily News.

"Had two deer killed last week by wildcats, one in Slate Run and the other along Big Pine Creek."—Land Management Protector Chester S. Siegel, Lycoming County.

ALPINE CLUB HIKE

The Annual Spring Hike of the Pennsylvania Alpine Club up the Mahanoy Mountain, one mile north of Herndon, was held Sunday, May 18, 1941.

The program consisted of the raising of a new American flag to replace the one placed there last year, and the planting of 100 Memorial Pine Trees to commemorate the 25th annual hike of the club. The main address was delivered by the Hon. Albert W. Johnson, Judge of the United States Court, of Lewisburg.

The success of the event was made possible by the tireless efforts of J. Paul Garrett, Postmaster of Herndon and President of the Northumberland Chapter of the Club who was ably assisted by Miss Dot Houseberg, representing the Harrisburg Chapter. Officers of the club in charge of the event were Col. Henry W. Shoemaker, President, and J. Herbert Walker, Secretary.

The land on which the flag was raised is being purchased by the Pennsylvania Game Commission who was represented at the event by Bruce P. Yeager, Lewis H. Estep and C. C. Freeburn.

"I received a complaint from a Mr. Becktell about birds destroying his wheat and clover fields. Upon investigation I found these birds to be Canada geese. There were very tame and it was possible to get within 10 or 15 feet of them before they flew."—Game Protector R. H. McKissick, Armstrong County.

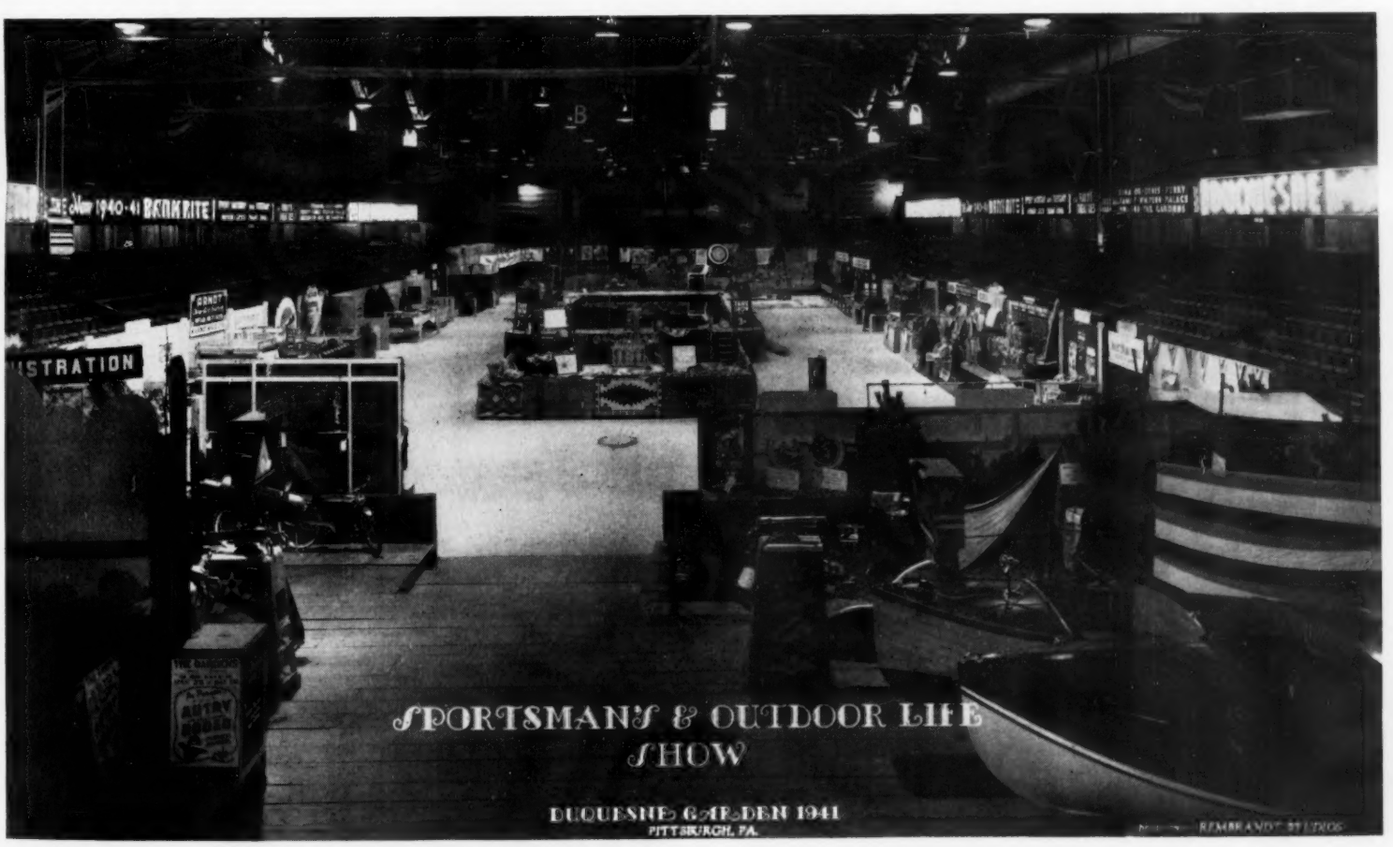
THOSE IN SERVICE

James S. Arthurs, Game Land Engineer of the Division of Lands, was accepted for military service with the armed force of the United States on May 16, 1941. He was sent to the induction center at New Cumberland, near Harrisburg, for classification and permanent assignment.

Arthurs' home is in Brookville, Pa., and he has been employed on boundary line surveys for the Game Commission since August 1929, at which time he was assigned as transitman on a per diem basis. On July 1, 1940, he was appointed to the position of Junior Land Engineer, placed on the salary payroll and given full charge of a survey crew.

His services with the Game Commission have been of a very high type and eminently satisfactory. He has a thorough knowledge of boundary line survey work, a keen eye for old land markings, and his accuracy can always be relied upon. Even his temporary absence while in the military service is a distinct loss to the Land Acquisition program, but his return to it will be anticipated with satisfaction. In the meantime, there is every reason to believe that he is making himself a valuable asset in the armed forces of the United States.

"Mr. Walter Wilson of Clarion lives on the north side of Liberty Street, and in the past few weeks ruffed grouse have been coming in from the river hill and eating the berries from the barberry bushes between his house and the street."—Game Protector H. J. Updegraff, Clarion County.



CURRENT TOPICS

Photo by Wm. C. Grimm

Male Bob-white quail had evidently been sitting on the back of one of the benches at the Pymatuning Museum, and when he took off, his foot caught in the crack between the two back boards. The bird's leg was so badly injured that it was necessary to kill the suffering creature.

NOTES FROM THE FIELD

"On February 17th, Mr. Homer Hess, Superintendent of WPA labor on Game Lands No. 33, noticed a trail in the snow that had some blood in it. The trail started from the bottom of a large tree and led to a log that was partly snowed under. The men moved the log and a weasel ran out and was killed by the men. Further investigation showed the carcass of a full grown grey squirrel, freshly killed.

"Mr. Hess back-tracked the trail to the tree that it came from and found that the weasel had gone up the tree to a hole about thirty feet from the ground, killed the squirrel in its nest, and carried it down the tree in place of dropping it to the ground. The squirrel probably weighed twice as much as the weasel."—Elmer Pilling, Game Protector, Centre County.

"Have picked up thirteen deer horns in the yard where we were feeding the animals during the past winter."—Edwin W. Carpenter, Game Protector, Sullivan County.

"A local sportsman reported that he stood on a bridge for over an hour watching salmon (Wall-eyed Pike) going up French Creek, in vast numbers.—W. T. Campbell, Game Protector, Venango County.

"A local man dug out a female red fox sometime ago. Upon examination he found that it contained thirteen unborn young."—Raymond M. Sickles, Game Protector, Crawford County.

"I observed a ringneck pheasant floating on the water like an old Mallard duck. While releasing pheasants near the inlet of Edinboro Lake, one of the birds walked out of the crate, followed the creek bank to a low plank bridge and jumped into a quiet pool of water under it. It then proceeded to sit there, floating lazily about on the water, thinking it was hiding from us."—F. H. Coffin, Game Protector, Erie County.

"On my East to West trip over the Super Highway on Monday, March 10, the surrounding country was blanketed with quite a heavy snowfall. The highway crews on the Turnpike had scraped the snow from the center strip, uncovering the bare ground and providing grit and some food for the song birds present. The birds gathered on this area in large numbers and hundreds of them were killed when they flew into the speeding cars. Especially was this true when two cars passed going in opposite directions. I stopped and identified these birds as being Horned Larks. I observed four of them killed by one car."—Robert D. Parlaman, Game Protector, Charleroi, Pa.

Two very excellent bulletins have just been published—one, "Soils and Security" by H. H. Bennett, Chief, U. S. Soil Conservation Service, Washington, D. C.; the other, "Outdoor Living" by E. Laurence Palmer, Cornell University, Ithaca, N. Y. The former is of special interest to farmers and agriculturists, whereas the latter is adapted primarily for Boy Scouts and other youth groups. Among other things it contains a lot of valuable illustrations on how to make different kinds of fires, how to filter water, tie knots, build lean-tos, prepare sleeping bags, make knapsacks, etc. Both would be very welcome additions to any sportsman's library.

"The first week of May, while patrolling in the vicinity of Hemlock, I located a den of rattlesnakes. Five were killed, the largest measuring 42 inches. Several more crawled back into the rocks. In all there must have been a dozen or more."—Game Protector George L. Norris, Warren County.

The New York Conservation Department and the Idaho Fish and Game Department are planning to revegetate their game lands and refuges throughout the State.—U. S. Fish and Wildlife Service, Washington, D. C.

For a number of years the late Dr. Joseph Kalbfus, first full-time Secretary of the Game Commission, and Seth Gordon, present Executive Director, together tried to keep track of the uncanny way in which martins seem to arrive from the south on almost the same date every year. There was a gentleman in Carlisle who also kept track of the date for many years, but what his record revealed is not available at the moment.

However, the other day the Director handed me a note saying, "On the morning of April 15, 1936 I heard a familiar call through the open hotel window and upon investigation found the martins circling around. That was the first day I had seen them. I have followed this matter each year since and have observed that they never vary their arrival time in Harrisburg more than a day or two from this date.

"On the morning of April 14, 1941, I went down to Market Street to observe whether the colony between the Square and the bridge had arrived. No birds were in evidence anywhere. The next morning I repeated the trip and there they were **on schedule.** It would be interesting to hear other records."

"While cutting hay Mr. Harry Hain, R. D. No. 2, Pine Grove Township, Schuylkill County, struck two fawn deer with the blades of his mowing machine cutting one's leg off above the joint, and cutting the other in the stomach. Mr. Schultz, a doctor who was present at the time of accident, took both fawns and sewed them up. Thirteen stitches were required to close up the stomach wound. He also sewed up the leg of the other fawn. Now after six weeks of nursing by Mr. and Mrs. Hain the wounds have healed up fine. One of the deer was shipped to Loyalsock Game Farm. Mr. Hain said he also saw another fawn in the same field on the day that the two fawns were cut. He also stated that he cut a fawn in the same field in a similar manner on another occasion about two years ago."—Peter J. Filkosky, Schuylkill County.

Photo by Rodney P. Schmid

Crews of NYA girls and boys planted over 40,000 spruce, white pine, apple, black hawk, pitch pine and maple leaf virburnum on State Game Lands Nos. 178 and 151 in Lawrence County under the supervision of Game Protector R. P. Schmid.

CURRENT TOPICS

E. T. Roetman, writing in the West Virginia Conservation magazine, April 1941, states that he kept an accurate record of every trip taken until several thousand miles had been traveled, at all seasons of the year, in an effort to find out how much wildlife was killed on the highways of that State. Records were kept for 17,560 miles, and 1 994 dead animals were counted.

He pointed out that once you know the number of animals killed per mile of road, and having assumed the length of time each type remains on the road, it is merey a matter of simple arithmetic to estimate the total number killed in the state each year. For instance if one rabbit is killed for every 36 miles of road, 9,504/36 or 264 rabbits are laying dead on the roads of West Virginia at any one time. If these are replaced by others every two days the total number killed each year will be 182 times 264 or 48,058. (Slide rule work.)

This total is of rather startling magnitude but as it does not include those killed and removed before they could be counted or those that were crippled but able to drag themselves off the road, it is probably lower than it actually should be. Similar computations for the other animals give us a total yearly kill of 1,755 skunks, 6,830 cats, 1,965 possums, 6,630 snakes, 860 dogs, and 2,600 rats.

The unidentified animals listed include rabbits, skunks, cats, dogs, possums, and rats but no snakes, turtles or birds. Assuming that this group is made up of the same proportions of animals as were found among those that could be recognized we can split it into 218 rabbits, 56 skunks, 117 cats, 27 dogs, 26 possums, and 39 rats. Using the average time assumed for each of these in the preceding calculations this group will add 22,000 rabbits, 812 skunks, 3,400 cats, 905 possums, 390 dogs, and 1,130 rats.

Adding these two sets of figures the following annual toll is arrived at: Rabbits, 70,050; Skunks, 2,567; Possums, 2,870; Dogs, 1,250; Rats, 3,730; Snakes, 4,630; Cats, 10,230.

As in many other forms of life, the female of the chigre family is more deadly than the male. She burrows under your skin whenever she gets a chance. Then she lays her eggs and promptly gives up the ghost. The larva, which the eggs soon turn into, feast on your flesh and fatten, but in doing so they raise itching bumps which lead you into a vicious circle. The more you scratch them, the more they itch. And the more they itch, the more you scratch them. This results in a state of complete frustration which renders the victim incapable of any activity, except to sit and scratch.

However, if you belong to the great army of amateur photographers, or have a friend who does, you need not fall victim to the vicious chigre. Get some hyposulfate of soda, which photographers use as fixing agent, mix into a liquid solution with water and rub it on your legs. Chigres run from it. The same solution, if you have already been bitten will kill them. Solutions of salt water, soda or ammonia are also said to help. And then, of course, there is plain bacon rind, advocates of which maintain has no equal, so far as results alone are concerned.

Photo Samuel K. Weigel

Part of over 300 food boxes built by Mr. Boyd Sockett, Wilkes-Barre, assisted by various sportsmen in their leisure time. They were made from empty powder boxes donated by various coal companies and were put out in Luzerne, Lackawanna, Carbon, Monroe and Wyoming Counties.

"About 8:00 A. M., April 24 I observed a lone crow acting peculiarly perhaps 80 yards from Troop "A" Barracks, Greensburg. It would walk a few feet, then hop up and sort of flutter to a new position nearby—always working about a central point. Then I made out a large rabbit in the grass. Evidently a mother guarding her nest that the crow had located, she would dash at the intruder, when it would beat a short retreat. This was done repeatedly. While officers at the barracks located a small bore rifle with which to dispatch the crow, a man came into sight over the hill near the little wildlife drama and scared the bird away. Very shortly thereafter, I approached the spot where the battle took place. "Little mother" looked anything but effeminate. She was sitting bolt upright in the grass, eyes protruding, ears stiffly erect. Paying no attention to me, she flashed alert looks in every direction, ready for battle should the marauder reappear. Thinking of the timorous nature commonly attributed to this little animal, I was both pleased and amused at its snorting belligerence."—Game Protector Robert Reed, Westmoreland County.

Big-game experts had believed the Pacific white-tailed deer to be an extinct species for many years, but last year, Victor B. Scheffer, a naturalist of the Fish and Wildlife Service, discovered a band of about 600 of these long-lost animals in southern Washington and northern Oregon. Now the U. S. Fish and Wildlife Service is trying to save the species before it really does become extinct.—U. S. Fish and Wildlife Service.

A THEORY UPSET

A five foot ball python gave birth in the Hershey Zoo on April 12 to eleven baby pythons (from 12 to 15 inches long) and upset a scientific theory held by zoologists that all Old World pythons lay eggs to produce their young.

Most scientific data accredited Old World pythons with laying eggs, coiling their bodies about them, and hatching the eggs after a period of 60 to 70 days.

The eleven babies are doing well, according to Ward Walker, director of the Hershey Zoo. The present birth of the ball pythons came as a very pleasant surprise to Wilbur Proctor and William Nester, the two keepers in charge of the reptile house. The young are very alert and strike out quite suddenly when approached.

There is only one exception in the python family producing its young alive, says Mr. Walker, and that is the water anaconda of South America. The ball python obtains its name from the custom of shaping itself into a ball and rolling downhill. There is a fable that a "hoop" snake can do this, but according to zoologists there "ain't no such animal."

In looking over the March 22, 1941 issue of "The American Field" the editor noted with interest the fact that a Pennsylvania dog, Peerless Pride's Beausport, owned by Oscar Cupp of Lewistown, won first in the shooting dog and second in the members' all-age stakes at the Cumberland Association's Trials held in North Carolina recently.

CURRENT TOPICS

PRELIMINARY 1940 GAME-KILL

The tabulation of the first batch of 1940 game-kill reports, submitted under law by 609,000, or 90%, of the licensed hunters last fall, showed a slight increase over the first batch tabulated in 1939, when 589,500, or 89½%, of the licensed hunters voluntarily responded without any action on the part of the Commission.

Scattered reports received from all sections of the State during the hunting season indicated that there would be a sharp reduction in the bag for certain species, and an increase in others. The partial tabulation proves pretty definitely that the Commission's predictions before the season last fall have, in the main, been borne out, and that the season on the whole was a satisfactory one, but not equal to 1938—a banner year.

The kill as reported by 90% of the 1940 licensees comprised 5,282,674 pieces of game. The partial tabulations for the years 1939 and 1940 present some interesting comparisons. The 1939 figures as reported by the 89½% of the licensed hunters in the first batch are shown in parenthesis immediately following the 1940 partial totals: Rabbits, 3,061,137 (3,552,384); Squirrels, 991,359 (886,-020); Woodchucks, 183,484 (170,057); Raccoons, 39,231 (36,496); Wild Turkey, 4,910 (4.936); Ruffed Grouse, 209,879 (222,636); Ringneck Pheasants, 422,875 (434,407); Bobwhite Quail, 69,199 (103,019); Woodcock, 27,151 (38,043); Shorebirds, 4,702 (5,919); Wild Geese, 1,967 (2,149); Wild Ducks, 47,178 (34,162); and Grackles (Blackbirds), 39,700 (43,145).

Early tabulations on the kill of deer indicate that for the 1940 season 90% of the hunters bagged 179,902 animals (approximately one-fourth of which were antlered deer and the balance without antlers), as against a total of 63,687 in 1939 and 171,662 in 1938. The slight increase in the 1940 kill over the doe season of 1938 is easily offset by the fact that there were more licenses sold in 1940.

The kill of bears must be further checked before even preliminary figures can be announced, but present indications are that the figure will run close to that of 1939, when 535 were taken.

Experience has proven that the tabulation of the individual reports is the most reliable basis for arriving at the annual game harvest. When the reports are received from the delinquent hunters, which number about 10%, the total 1940 kill for the several species will be higher than the figures above, and the totals will be announced later. For 1939 the Commission obtained reports from 98½% of all license holders, a remarkable record, and it hopes to equal that figure for 1940.

A lot of club secretaries in sending out announcements of meetings, banquets, etc., appended at the bottom of their mailing card some statement urging their members to submit their game-kill report. This is real co-operation,and the Commission appreciates it very much.

SMOKELESS POWDER DANGEROUS

"Never use smokeless powder loads—even **light** smokeless powder loads—in guns having Damascus or other twist barrels! To ignore this warning is to court severe personal injury through possible gun barrel rupture.

"Some sportsmen still think twist barrels will handle modern loads safely as long as the extra heavy 'long range' loads are avoided. This is a fallacy. Twist barrels were designed back in the days of black powder, which is far less powerful and develops a much lower pressure than any of our modern gunpowders. Even the so-called 'light' modern loads are unsafe in twist barrels.

"Many of these barrels are the handiwork of highly skilled craftsmen. But regardless of the quality of workmanship employed, the method of combining low-carbon steel with iron, and the weakening heating process to which they have been subjected during manufacture, render them unsafe for the high pressures developed by modern loads, for which they emphatically were not designed. American manufacturers have not made them since the advent of modern progressive burning or 'smokeless' powder.

"If you own a Damascus or other twist-barrel gun, don't take chances. Retire it now, and avoid the possibility of accident and injury."

"Clarion County lost its oldest hunter during May, possibly one of the oldest residents in the State to take out a hunter's license—Mr. S. W. Bernsley, of Shippenville, who was ninety-one years of age and hunted deer last season."—Game Protector H. J. Updegraff, Clarion County.

FEDERAL AID BENEFITS

The Federal Aid in Wildlife Restoration Fund continues to benefit Pennsylvania hunters as evidenced by the approval by the Fish and Wildlife Service of another land acquisition project. Federal Aid funds are made possible by the tax on firearms and ammunition amounting to about $3,000,000.00 per year. Last year Congress appropriated $2,500 000.00 for this cooperative program, which amount is distrbuted to participating States to aid them in their wildlife program.

The land acquisition project just approved provides for the purchase of 9,531.5 acres of State Game Lands to cost about $35,288.85. Including other acquisition costs, as for making boundary line surveys and examining and abstracting titles, the total estimated cost of the project is $47,679.80.

The Game Commission advances all money required to purchase these lands and after titles for the various tracts are vested in the Commonwealth, the Federal Government reimburses the State in the amount of 75% of the total actual cost. The Federal Government's estimated share of the costs of this new project is $35,759.85.

The design of the 1941 "duck stamp," which must be purchased by all waterfowl hunters over 16 years old, has been taken from a ruddy duck drawing by E. R. Kalmbach. Eighth in the annual series, these "duck stamps" will be placed on sale at all first and second-class post offices on July 1. The color of the new stamp was described as "lively brown."

Mr. Kalmbach's design shows a male and female ruddy duck with their brood swimming at the edge of the marsh. A well-known painter of wildlife subjects, he is also nationally known as the head of the Fish and Wildlife Service food-habits laboratory at Denver, Colo.—U. S. Fish and Wildlife Service.

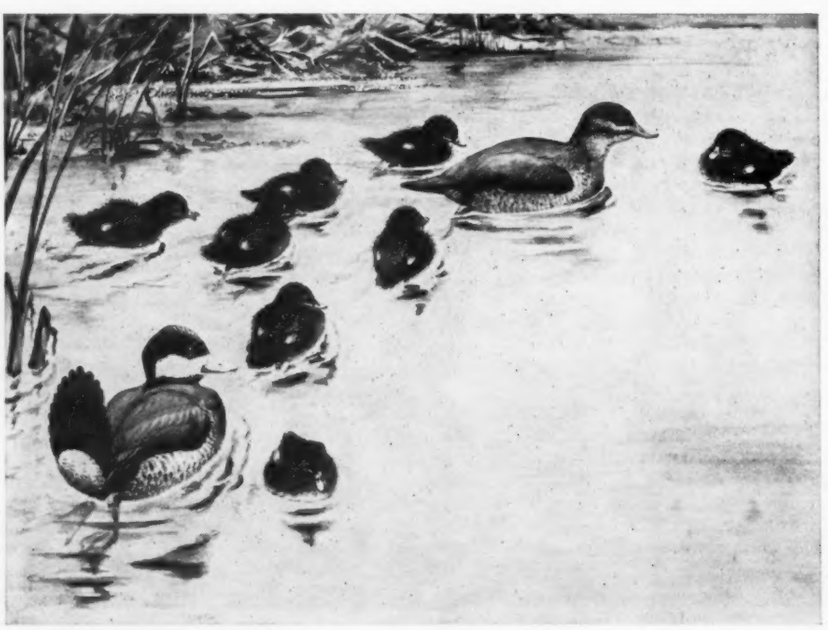


Photo U. S. Dept. of Interior

The 1941 Duck Stamp depicts a male and female ruddy duck with their brood. Drawn by E. R. Kalmbach.

WITH THE CLUBS

An open archery tournament conducted recently by the Carlisle Archery Club at Belair Park, near Carlisle, was entered by members of the Harrisburg Archery Club and the Susquehannock Archers, some of whom came out with prizes in their divisions. Second and third place, respectively, in back of Miss Ruth McGowan, of the Carlisle team, was taken by Bertha Drebelbis and Martha Schauer, of the Susquehannock Club. Miss Schauer, by the way, is employed in the Harrisburg offices of the Game Commission.

Ernie Lehmer, of the Harrisburg Archery Club, came in second to Ernie Mayes, of Red Lion, in the men's division. In the target shooting, prizes were won by Lehmer, Miss Schauer and Frank Sponhauer, Lehmer's target score was highest in the meet.

Members of the Susquehannock Archers scored as follows: Martha Schauer, 409, 450—859; Bertha Drebelbis, 415, 450—865; Frank Sponhauer, 554, 538—1092; Frank Childs, 523, 477—1000; George Drebelbis, 388, 378—766, and Dick Davis, 495, 501—996.

Every heat was a thriller at the McKean 'Coon Hunters field trials held May 4 at Calico Park. Sixty-six dogs competed in 11 heats with winners as follows: First heat, tree - won by Indiana Joe, owned by Lesser Brothers; line - won by Rival, owned by Eddy & Bennet; Second heat, tree - won by Whiz, owned by R. M. Alford; line - won by Barking Sam, owned by Donovan; Third heat, tree and line - won by Red Thunder Cloud, owned by Eddy; Fourth heat, line and tree - won by Red Ranger, owned by A. H. Brown; Fifth heat, tree - won by Brindle Boy, owned by Penn-Ohio Kennels; line - won by Little Hobo, owned by Hall; Sixth heat, tree - won by Jack, owned by Imara; line - won by Jim, owned by K. Patterson; Seventh heat, tree - won by Roudy, owned by Lasch & Sobol; line - won by Jack of Spades, owned by Jainer; Eighth heat, tree and line - won by Bradly, owned by Eddy & Bennet; Ninth heat, tree - won by Brindle Girl, owned by Imara; line - won by Sail, owned by R. M. Alford; Tenth heat, tree and line - won by Blue Lindy, owned by Penna.-Ohio Kennels; Eleventh heat, no tree dog; line - won by Rex, owned by R. M. Alford; Grand final, tree - won by Red Thunder Cloud, owned by Eddy & Bennet; line - won by Bradly, owned by Eddy & Bennet.

Approximately 150 enthusiastic sportsmen attended the Fifth Annual Banquet of the Littlestown Fish and Game Association on April 3. This organization is up and coming and its officers and committees are doing a splendid job. Last year the association purchased 50 bushels of corn and 500 pounds of scratch feed for wildlife. It also planned a contest for the current fishing season wherein a prize will be offered to the boy under 10 years of age who catches the largest fish.

Twenty-seven states require their fish and game personnel to wear uniforms, five make it optional, and sixteen do not require them to wear any uniforms at all.

IN MEMORIAM

"On Friday, March 28, 1941, Joseph Herb, R. D. No. 3 Sunbury, was killed in a bootleg coal hole near Trevorton, Pa. Joe, as he was universally known by the sporting fans of this region, was an ardent hunter and at the time of his death possessed eight of the best hunting dogs in this vicinity. It was always his desire to preserve and defend wildlife, and numerous acts on his part for the perpetuation and betterment of the animals of the woods have been noted. For the great love of this man, Joe Herb, whose only real aim in life was to be a good sportsman, we submit this memoriam to a great friend and sportsman—a member of our Club."—Roush Gun Club, Sunbury.

More than 200 enthusiastic sportsmen attended the banquet of St. Vincent's Field and Stream Association at Girardville recently. Numerous speakers and guests including representatives of the Fish and Game Commissions were present.

The organization, which has only been in operation five months, has made rapid strides. Its slogan is: "To buy and release a rabbit for each member of the association."

All Seasons Afield With Rod & Gun—By Raymond R. Camp: Mr. Camp, well known rod and gun editor of the New York Times, has wrapped up in one parcel a lot of good dope for the hunter and angler. He answers the important questions when and where to hunt and fish, and what to expect. What equipment is needed, how to select it, and how to use it. He deals with the various methods, practices, and equipment vital to the successful taking of the many fresh water and salt water game fish and the large and small game animals of the Eastern United States and Canada. His book is directed primarily to the amateur, even the novice in these sports; but many of the things he has to say will interest the expert as well. Published by the Whittlesey House, New York and London; price $3.50.

Maybe on the next trip you better take my wife.

Over 250 sportsmen and their friends from Freeland, White Haven, Hazleton, West Hazleton and Wilkes-Barre attended the annual banquet of the Luzerne County Game and Fish Conservation Association recently. Seth Gordon, Director of the Game Commission, in the principle address, reviewed the history of that Deparament since 1913 when he entered the service. Short talks were also given by J. C. Gilford, Field Division Game Supervisor; Game Protectors Gerald Tiffany and Samuel Weigle; Russell Womelsdorf, Fish Warden; George L. Feissnear, Joseph Piazzie, President of the Association, and Attorney G. J. Bruger, who awarded the prizes. These awards constituted one of the features of the evening and were presented to the winners of the vermin-trapping contest held last fall and winter. The trappers, all under 16 years of age, accounted for 173 weasels, 11 mink and 6 fox. In the nine-year period the contests have been conducted by the club 1834 weasels, 76 mink, and 46 foxes have been trapped. A total of 1807 traps have been given away free to young trappers by the Association. The boys who were awarded prizes donated by local sportsmen and clubs, are as follows: Marvin Eroh, John Herring, John Beitel Joseph Yefchak, Edward Yurish, Edward Stower, John Vargo, William Shaver, Edmund Kochie, John Halko, Joseph Bokitas, William Ford, and Thomas Soika.

George L. Feissner, vice-principal of the Freland High School, who acted as chairman of the program, also recounted the success of the water snake contest held as part of the fish program. A total of 195 water snakes were killed in the past two years during the contests. In addition to these contests, the club has successfully pursued programs for the stocking of fish, planting trees, feeding game in the winter months and raising young ringneck pheasants.

This year, the club has planted 1,500 trees in the nearby woodland. As a part of its game program, Mr. Feissner noted that the club has purchased over 500 rabbits in the past six years. For this year, the club has made application for 50 six-week-old ringnecks to be distributed, and also raised 35 last year.

During the evening, Mr. Feissner thanked the Tamarack Rod and Gun Club, the Mt. Yeager Rod and Gun Club, and the Yellow Jackets Club for their assistance in game and fish conservation.

Among the prominent sportsmen introduced on the evening's program were Clyde Tinner, president of the Luzerne County Federation of Sportsmen's Slubs; Sam Gedrotz, secretary; Victor Piazzie, treasurer of the federation; Hall Depew, of West Hazleton; Howard Lentz, secretary of the local club; Peeny Nowak, member of the Mush Valley Club; Charles Derench, president of the Mt. Yeager Club; Mr. Schrader, president of the West Hazleton Club, and Louis Ravina, member of the Tamarack Club.

WITH THE CLUBS

Allegheny-Crawford Co. sportsmen honor John M. Phillips and plant willow trees.

Inscription on Mr. Phillips' Monument.

The Allegheny County League and Crawford County Sportsmen's League recently joined in one of the largest mass planting of willow trees ever undertaken by any conservation group, at the waterfowl refuge and museum at Pymatuning on Sunday, May 18. The Allegheny Countians made a spectacular appearance as they arrived by caravan, each automobile using an American flag on the left front fender as a mark of identification.

When Game Commissioner O. Ben Gipple of Harrisburg, James N. Morton, Chief of Division of Land Management and I arrived at the scene of operations early that morning there was just handful of Commission officers and sportsmen present. But to our amazement none other was included in that flock of early birds than John M. Phillips, that veteran old war horse of conservation who was to be honored later in the afternoon through the unveiling of a testimonial plaque and the planting of a willow grove to his everlasting memory. I was subsequently to learn from Seth Gordon, our Executive Director, that the old gentleman, if we can call him old, had the day before spent many hours in Washington, D. C., at the National Scout Jamboree. But, there he was, the next morning bright and early away up on the Pymatuning.

In back of the garage Burt Oudette, Game Protector in charge of the refuge, had a large wagon load of willow cuttings, nearly 100,000 of them, and immediately following lunch, which was carried in baskets packed by the caravanists, Burt took over the loud speaker system and assigned various groups to certain areas where the planting was to be done. The whole event was conducted in a very orderly manner, yet everyone had a swell time. As the afternoon waned everybody reassembled to take part in the testimonial to Mr. Phillips.

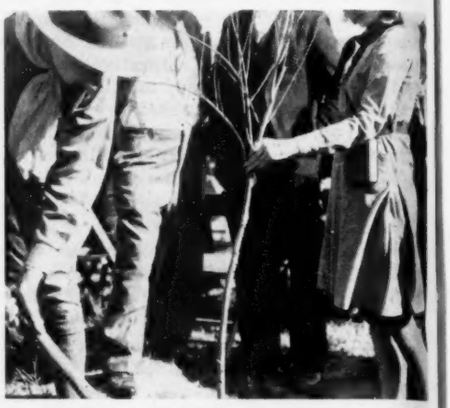
By mid-afternoon the number of persons at the refuge had increased to several thousand, among them a group of bicyclists numbering approximately 400 from Cleveland, Ohio. While the sportsmen were out planting their willow trees several school bands furnished some excellent music on the lawn in front of the museum. The day was clear, the sun bright but not too hot. A nice breeze was blowing, and taking it by and large conditions could not have been more favorable.

The arrival of the bicycle brigade created somewhat of a sensation until the weary, saddle worn participants stabled their bikes and began to mix with the rest of the ever-increasing crowd. Exactly 418 of these enthusiastic peddalers, ranging in age from 60 to 12, came by train as far as Andover on the Ohio line of the Pymatuning Lake, a little town of perhaps a thousand or two. There

Robert Lamberton, member of the Game Commission from Franklin, made the welcoming address.

they were met by their bike repair truck and first aid units, and from there they peddaled their way to the Pymatuning, over the large "fill" that serves as a road across the lake and thence along the shoreline to the refuge where they were met by Burt Oudette. All

Monument dedicated to John M. Phillips.



Boy and Girl Scouts planting last of 12 weeping willow trees dedicated to Mr. Phillips.

of the group comprised nature lovers and camera fans and the refuge afforded them an excellent opportunity to enjoy those hobbies.

The testimonial services to Mr. Phillips began about 4:15 with introduction of speakers and guests by Honorable O. Clare Kent, Judge of Crawford County. Representatives of the various State Departments, and Sportsmen of the groups that took part included Robert Lamberton, member of the Game Commission, Charles E. Baer, Deputy Secretary of the Department of Forests and Waters; Charles A. French, Commissioner of Fisheries; John R. Williams, Director of Parks, Department of Forests and Waters; Raymond Armstrong, President of the Northwest Division of the Federation; R. S. Cooper, President of the Southwest Division; Emmett Williams, President of the Crawford County Sportsmen's League; and Bob Miller, President of the Allegheny County Sportsmen's League. Some glowing tributes were paid by all of the aforesaid to Mr. Phillips and to his accomplishments.

In return "The Old Hound", to whom he was referred by Ray Armstrong, with quiet dignity and in his usual unhurried and unflustered manner, took Ray Armstrong's well-meant tribute a little further along by saying "I may be an old hound, but judging from these good friends I have around me, I certainly must have reared a lot of pedigreed pups."

In conclusion, Honorable D. B. Miller, former Judge of Allegheny County, and lifetime friend of Mr. Phillips unveiled the testimonial plaque and made the presentation following which the two remaining of twelve weeping willow trees dedicated to him were planted by Boy and Girl Scouts. Many of those interested adjourned to the boat docks at Conneaut Lake Park where they witnessed the planting of wall-eyed pike by the Fish Commission.

ALLEGHENY COUNTY SPORTSMEN'S LEAGUE
ALLEGHENY COUNTY SPORTSMANS LEAGUE
JOHN M. PHILLIPS
WILLOW TREE RUSTIC CARAVAN
OFFICIAL MOTION PICTURE MAN FOR ALL SPORTSMAN'S ACTIVITIES

Top: Committee members of Allegheny-Crawford Sportsmen's Leagues who helped carry out the program. Left, Burt Oudette and helpers handing out willow shoots. Center, arrival of Caravan. Right, Oudette and Mr. Phillips atop cuttings. Left and right, planting the shoots — genial Ray Armstrong on right. Center, "Pete" Krauss, Photographer, for the Allegheny County group, and below, part of the large bicycle cavalcade which visited the Museum from Cleveland, Ohio.

1. Some of the grouse dog handlers present. Back row, left to right: Gene Galloway, Grove City, Pa.; Harry J. Updegraff, Shippenville, Pa. Wm. J. McCracken, New Kensington, Pa.; Col. J. P. Stels, Ridgway, Pa. Front row, left to right: Larry Tuttle, Johnsonburg, Pa.; Dick Hoyer, Andover, Mass.; Henry Fish, Bradford, Pa.; S. A. Magee, Harrisville, Pa. 2. Small portion of gallery waiting for start of a brace. 3. Left to right: Sam Ostergard, Warren, Pa.; Dick Hoyer, Andover, Mass.; Gene Galloway, Grove City, Pa., with the ultimate winner on leash, Prince Rod's Mac, owned by Harold J. Boulton, Clearfield, Pa.; Forest Galloway, Wesley, Pa.; Robert P. Habgood, Jr., Bradford, Pa.; Henry Fish, Bradford, Pa. 4. A portion of the gallery following the handlers, judges and reporter on No. 7 all-age course. 5. A portion of the gallery following the handlers, judges and reporter on No. 1 all-age course. 6. Left to right: Official reporter Wm. T. McCarty, Ford City, Pa.; Judge Jay C. Gilford, Forty Fort, Pa.; Judge Jos. A. Anderson, Greenville, Pa. 7. On horses, left to right: Judge Jos. A. Anderson, Greenville, Pa.; Judge Jay C. Gilford, Forty Fort, Pa. (Hidden in back of Jay Gliford and partially showing is Reporter Wm. T. McCarty). On extreme left and partially in picture is Sam Light, Sec'y. Back of Jos. Anderson's horse is Senator Kahle, Knox, Pa., and at extreme right is Seymour Seybold, New Kensington, Pa.

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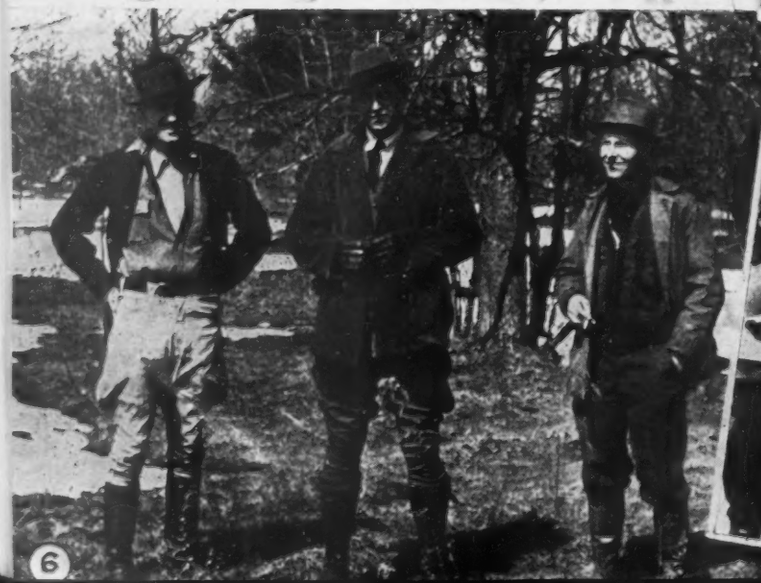

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WITH THE CLUBS

VENANGO GROUSE TRIAL

By BILL McCARTHY

EXCERPTED FROM "AMERICAN FIELD",

Open All-Age Stake

PRINCE ROD'S MACK, medium-sized, lofty-running setter, owned by Harold J. Boulton of Clearfield, Pa., developed and handled by Gene Galloway, triumphed over the strongest field of grouse dogs in the Open All-Age Stake in the history of the Venango Grouse Trial Club. Pressure brought to bear by the field forced this sterling son of Sam L's Skyrocket and Lady Diana Boaz to unfold a perfect grouse dog performance in order to gain indisputed right to the honor accorded him. First—Laetus Jack, 305601, setter dog, by Audubon B—Betty Brunette, Sam Mannarino, owner; William J. McCracken, handler. Second—Sam L's Tornado, 305946, setter dog, by Sam L's Skyrocket—Kid's Peerless Star, Sam R. Light, owner; Gene Galloway, handler. Third—Radio Communique, unreg., setter dog, by Communique—McKeith's Tip. Dr. C. F. DeVries, owner; W. P. Smith, handler.

The annual spring trials of the Venango Grouse Trial Club were run over the permanent grouse trial preserve at Vowinckle, Pa. With each successive running of trials staged by the Venango Club, we have found ourself wondering if grouse trials had not reached their peak. At the completion of the most recent trial, which started on Saturday, March 21, and continued until late Tuesday afternoon, we were lost for words and bewildered at the quantity and quality of the dogs entered in the three-stake program. Now we do not know when the pinnacle will be reached. The Venango Club has achieved a firm position as the guiding light of grouse trials through strict adherence to fundamentals, exercised by a personnel department par excellence. Dr. Gail Kahle of Hadley, Pa., plays an important role in the president's chair.

Blessed are the Venangoites with the steadfast leader of leaders, Sam R. Light, a secretary whose personality is reflected in the doings of his club. An active board of directors is to be found consisting of J. Claire Smith, Larry Tuttle, M. A. Carrop and Harold J. Boulton. All of the officers were present.

We say that the Venango Club was favored with perfect weather because on this occasion the grouse seemed to be on their good behavior and scenting conditions, except for short intervals, were at their best. In reality, we were treated with everything from midwinter temperatures to the comfortable breezes of spring; there was a blazing sun at times, also rain, snow and hail. Still we say, perfect weather, because grouse were found and grouse were pointed.

Since sound judging was the prime factor in the success of these trials, let us introduce the two gentlemen who accepted their assignments with sincerity of purpose. Jay C. Gilford, game division supervisor for the Commonwealth of Pennsylvania, hails from Forty Fort, Pa. Always calm and collected, this connoisseur of class bird dog performance gained for himself a host of friends through his genial personality and pronounced desire to work the event to a most gratifying conclusion. Paired with the tireless Mr. Gilford was Joseph A. Anderson of Carlisle, Pa. Mr. Anderson needs no introduction to the grouse trialers of Pennsylvania. A practical background of grouse hunting in the Keystone coverts for more than a quarter of a century equips him with the knowledge so essential in parting the chaff from the grain.

A rousing hand of heart-felt applause greeted the judges when their All-Age decisions were announced on that bitter cold evening of March 25.

Marshaling an event of this size was by no means a simple task. Plodding through the deep snows, the robust M. A. Carrop of New Kensington, Pa., guided the field trialers until a state of near exhaustion forced the hard-tramping Mike to deputize an assistant in the person of Arthur Haight of Johnsonburg, Pa. We laughingly tell you that Art worked diligently, but there were times when the proud owner of Knotty Pine Patty did not know exactly where he was guiding the party. Little Pep Undercoffer of Clearfield, Pa., took over when Art Haight succumbed, a victim of the heavy underfooting. In addition to marshaling the running Director Carrop also attended to the mechanics of a well-managed trial; handlers were informed of their brace and dogs were on the line ready to start, not a minute was lost between braces.

Interested spectators swelled the gallery to unprecedented numbers during the disposition of the All-Age event and, surprisingly enough, a goodly crowd remained throughout Monday and Tuesday. There were a number of grouse trial celebrities from several states in the gathering.

With Capt. Winger in command, the Pennsylvania State Motor Police directed the automobile caravan. Assisting Capt. Winger were Privates Zeigler, Angell and Duvall.

The drawing was conducted at the usual headquarters, the Fryburg Inn at Fryburg, Pa. However, on this occasion the grouse trialers bedded down over a scattered area. The Bucktail Inn in Marionville, Pa., located just eight miles from the trial grounds, proved a popular rendevous for many of the handlers.

Open Puppy Stake

Twenty-two fast-stepping youngsters vied for honors over a deep snow clad course in this event.

Laetus Jack, setter dog, owned by Sam Mannarino of New Kensington, Pa., garnered first place after a second series run with the puppy adjudged next best, Sam L's Tornado. Tornado is the property of Sam R. Light of Punxsutawney, Pa. Radio Communique, owned by Dr. C. F. DeVries of Lansing, Mich., came in for third honors. He too, won his placement after a second series.

Junior All-Age Stake

Twelve candidates accepted the issue in this event and we will hasten to state that their performances were a far cry from the thrilling races turned in by the puppies.

The Derby courses were not in the best conditions for field trial work, nor did they hold sufficient birds. Only two birds were moved during the running on seven different courses. At the conclusion of the first series, in view of the fact that no outstanding races had been turned in and few birds were moved, the judges, wisely enough, decided to select the winners without further running.

A consistent winner in her puppy and derby year, Normandie's Whiteflash, setter bitch, owned by J. E. Grace and J. C. Smith of Grove City, Pa., turned in a race which garnered first place by a wide margin.

Second honors went to Morning Mail, white, black and ticked setter dog, owned by Evans and Spahr of Warren, O., and handled by T. H. Beers. Beers performed an elegant job in showing Mail to advantage. Mail's race was level throughout and his effort, in the opinion of these seasoned judges, earned for him a spot over the third-place winner, Shenvalee Queen. Queen is owned by John M. Hadaway of Flint, Mich., and was piloted to her well-earned position by W. P. "Bill" Smith.

Glendale Skeet made his debut as an All-Age dog and a very fitting first attempt it turned out to be, for Skeet was returned to Harry R. Hyde's Glendale Kennels with a third-place award.

"On November 4, 1940, my son, Billy, age 7, who carries my game, and I motored to Washington Township, Indiana County, for a day's hunt. A friendly farmer not only gave us permission to hunt on his land, but directed us to a hillside where CCC boys had planted black locust, Japanese larch and red pines for soil conservation work as a likely spot for rabbits. By 11:15 A. M. I had my four rabbits, without the use of a dog. We offered the farmer half of our game, but he only accepted one rabbit. He then suggested that we return in the afternoon to hunt squirrels in another corner of his farm. We returned and got three gray squirrels before sundown and the farmer gave us a very cordial invitation to come back again. Although I was not able to get back again last fall, Billy and I are planning a trip there next hunting season.

"Since that trip I have often thought how well soil conservation work, timber production and protection, game improvement, and good will visits with the landowners work together. This particular farm seems to be a perfect spot for all of the mentioned improvements, because it is too steep for cultivation.

"Being inspired, Billy and I plan to plant 500 black locust, 500 Japanese larch, and 500 white spruce on one and one-half acres of idle land in the vicinity of DuBois, where hunting is permitted. We are now awaiting the arrival of the trees, which we shall plant during our spare time."—Rex Schriver, DuBois, Pa.

Sport and National Defense

Continued from Page 10

Boys are taught how to handle firearms properly.

reach 15,000 per month already. The production of .30 and .50 caliber machine guns was 9 percent ahead of the March schedule. The production of ammunition for .30 caliber machine guns—interchangeable with ammunition for the Garand—increased 36 per cent in March over February. Altogether, the production of small arms ammunition for the Army has increased from 7,500,000 rounds per month in 1939 to 38,000,000 rounds per month this year.

That would hardly appear gloomy when compared with the picture of the beseiged or enslaved nations of Europe which, hampered by narrow-minded anti-firearm legislation, permitted whole generations of their citizens to grow blissfully unaware of the intracacies of marksmanship, and permitted their firearms industries to become stagnant and shriveled.

Great Britain, France, Holland, Spain and all the rest except Finland and Switzerland permitted themselves to be drawn into the same mistake. And, it is interesting that the two nations in which it is almost a duty to be a marksman represent on the one hand a nation that held off an overwhelming foe with accurate rifle fire to retain its honor and a vestige of freedom, and on the other hand the last remaining free people on the European continent.

The predicament of Engand is the most obvious today, probably because that nation is hard at work trying to rectify the mistake it made. It is faced now with a shortage of small arms ammunition, invaluable in military training as well as in possible defense against invasion. Moreover, it is faced with a shortage in military shooting instructors, and with a shortage of citizens with even a basic knowledge in any kind of arms. It has appealed to the American army of sportsmen and to the industry which this army has fostered, for aid—for any kind of rifle, pistol or shotgun that might help in the defense of a British home. And, it has appealed to its own National Rifle Association for the instructors.

Over here, our call would be answered by those ten million persons in America's greatest sport.

A Family Reunion

Continued from Page 8

sue their studies carefully and ascertain enough facts for another get-together, he would call another conference.

Following the morning session those present mingled with one another and discussed many other problems of mutual interest until the dinner gong sounded. A most excellently prepared meal was served by Mrs. Leffler, Mrs. Lamberton, Mrs. Castner, Mrs. William Matthews, and other ladies present, and at the meeting of the afternoon session a vote of thanks was heartily accorded them.

In the afternoon all of the Commission members and its Staff were given an opportunity to discuss the various phases of the work under their jurisdiction, following which, in a rising vote of thanks to Mr. Leffler for his kindness in making the pleasant and beneficial gathering possible, Chairman Hanes declared the gathering adjourned.

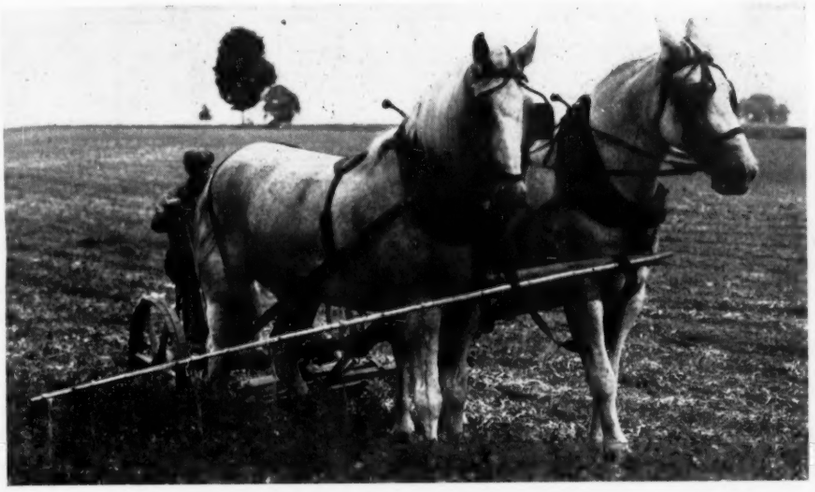
Those attending the conference included: Hon. Ross L. Leffler, Pres.; Samuel Castner, Vice-Pres.; R. Lamberton and O. Ben Gipple, members of the Commission; Seth Gordon, Executive Director; R. A. McCachran, James N. Morton, W. C. Shaffer, Richard Gerstell, N. E. Slaybaugh, Wilbur M. Cramer, and Leo A. Luttringer, Jr., staff heads; John B. Ross, M. E. Sherman, Hayes T. Englert, William J. Davis, Jay Gilford, Rollin Heffelfinger, and M. J. Golden, Field Division Supervisor; and Federation officials including: Charles Rowe, Chairman, Charles Nehf, Vice-Chairman, E. T. Balderston, Secretary, Southwest Division; Ray Armstrong, Chairman, Dale Skinner, Vice-Chairman, Seth Myers, Secretary, Northwest Division; R. S. Cooper, Chairman, A. J. Stahura, Vice-Chairman, Robert C. Yake, Secretary, Southwest Division; Arch Hanes, Chairman, Joseph Barkley, Vice-Chairman, Northcentral Division; Robert Steventon, Secretary, Northeast Division; M. Banker, Chairman, Dewey Miller, Vice-Chairman, Dr. Anthony, Secretary, Southcentral Division; Dalton Bell, Chairman, Central Division, and Dr. C. A. Mortimer, Secretary of the Federation.

Photo by Dr. A. A. Allen

The Yellow-billed Cuckoo is the chief destroyer of the Tent Caterpillar.

Your Friend the Game Protector

Continued from Page 5



Landowners are encouraged to use flushing bars to save nesting game birds and animals.

tors do not make a practice of killing valuabel dogs, but destroy only those unlicensed animals of the "cur" type which are obviously homeless. The dog-stealing racket, which has spread so alarmingly in recent years, gives the Game Protector much concern and he can always be depended upon to do his utmost to assist in restoring a stolen dog.

From the many and varied duties of a Game Protector to which we have briefly referred, it is obvious that, even though game violations were reduced to a minimum or eliminated entirely, he would still have a sizeable job on his hands. Although it may be expecting too much to look forward to the time when we shall have an outdoor Utopia, we do not believe it too much to expect that some day game prosecutions will be much less numerous. With increased confidence in the Game Protector, and a promotion of better relations between landowner, sportsman, and enforcement officer all looking toward a more intelligent understanding of the value of our natural resources, it is inevitable that violations will be noticeably reduced. The time previously spent on this program will be devoted along more constructive lines, such as planting producing food plants for wildlife, feeding game, educating the public, providing adequate cover, and acquiring additional public hunting grounds. In the light of modern conservation movements, there is no plausible reason why the annual number of game prosecutions in Pennsylvania should average 3,000, and the total cash penalties $62,000, as is the condition today.

Now what can **you**, the sportsman who should be interested in bringing about these more desirable conditions, do about it? Well, you can help tremendously: (1) by offering your wholehearted cooperation to your local Game Protector, who is working for your best interests in the community; (2) by playing the game according to the rules and seeing to it that all others observe the law; and (3) by assisting in the promotion of a program of better public relations and broader outdoor education whereby all will pull together toward a better understanding of the many values of wildlife. If you will do this, you will cement a firmer bond of fellowship between yourself and the custodian of your wildlife resources; and you will be able on every occasion to greet with a good clear conscience one whom you can truly call your friend—the Game Protector.

He assists sportsmen in trapping game.

Photo by R. S. Sullenberger

The Game Protector is ever alert to educate the people in his community. Junior Conservation Club sponsored by Lancaster County Sportsmen's Association.

The Life Equation of the Ringneck Pheasant

Continued from Page 7

TABLE 7.—Nest locations in 30-acre alfalfa field on basis of area.

Distance from edge in feet	Area of strip in acres	No. nests in strip	Nests per acre
0- 50	3.8	3	.79
50-100	3.3	4	1.21
100-200	5.3	5	.94
Over 200	5.0	4	.80
Totals	17.4	16	.92

TABLE 8.—Decline in size of clutches.

Date laying first egg	Number clutches	Average number eggs in clutch
First half of April	6	15.0
Last half of April	19	14.2
First half of May	37	11.6
Last half of May	48	9.6
First half of June	17	9.4
Last half of June	8	8.0
First half of July	6	7.7
Total	141	Average 10.8

which the females of his harem may nest and which he defends against all other males. This territory was called a "crowing area" by Wright (1930). The cocks on the study area were observed to have from two to thirteen hens in their harems, although five or six was the usual number (Figure 1). Leopold (1936) reported that central European gamekeepers preferred a sex ratio of 1 cock to 5 or 6 hens.

During the nesting season of 1939 complete observations were obtained on 310 pheasant nests. Of these nests, 181 were on the pheasant study area and the remainder were scattered in other parts of Lehigh and Northampton Counties. Farmers reported the presence of 35 nests; the remaining 275 were located by the writer by means of direct search.

The nesting season extended from early April until late August. The earliest recorded laying date was April 6. The peak for the establishment of nests came in May and early June (Figure 2). Nests instituted in May had the best chance of hatching successfully. In 75 per cent of the successful nests, laying began in May (Table 3).

In April the only cover available for nesting purposes was the vegetation of the previous year. This consisted largely of the old stalks of such plants as bluegrass *(Poa pratensis)*, orchard grass *(Dactylis glomerata)*, broomsedge *(Andropogon furcatus)*, lesser ragweed *(Ambrosia artemisiifolia)*, greater ragweed *(Ambrosia trifida)*, sweet clover *(Melilotus alba)*, goldenrod *(Solidago* sp.) chicory *(Cichorium Intybus)*, and aster *(Aster* sp.). Most of the nests were in fencerows, wasteland, or along roadsides (Table 4).

During May the vegetation grew rapidly and soon supplied abundant nesting cover. Alfalfa, clover, small grains, pastures, and grassy waste areas became available for nesting. These cover types were used most in May and June. No nests were established in pastures after mid-May, probably because of grazing. More than half of the nests on the study tract were in fields of alfalfa or clover (Figure 3). Wheatfields were also important nesting sites.

The cover types in an agricultural region vary considerably in value as pheasant nesting cover. The service rendered by a type is determined to a large extent by the amount of the type available for nesting. In order to have a factor for comparing the value of various cover types to a species, Williams and Marshall (1938) worked out per cent acreage-use ratios for each type. They devised the formula:

$$\frac{\text{(Per cent of nests in a cover)}}{\text{(Per cent acreage of a cover)}} = \text{Per cent acreage-use ratio}$$

This formula was used to determine the ratios for the nesting cover types on the pheasant study area. The values obtained are listed in Table 5.

Pheasant nesting densities differed widely from field to field. Numerous 11- to 30-acre hayfields contained a nest to an acre. A 3-acre field of mixed alfalfa and clover contained nine nests, or 1 nest to 0.33 acre. The greatest density encountered was on a measured acre in a 30-acre alfalfa field, where ten nests—simultaneously occupied—were discovered on June 5. Two of these nests were side by side, less than 6 inches apart. The hens were flushed from the nests at the time of their discovery. When found, both nests had been incubated about 10 days. On two other occasions nests were observed side by side, less than a foot apart.

The fencerows on the study area contained about 1 nest to 0.4 acre. Considering the density of the nests and the per cent acreage-use ratios presented in Table 5, the writer is inclined to agree with Leopold (1937) that pheasants prefer nesting in fencerows to nesting in alfalfa or clover. Fewer nests in hay or grain were found on the Spring Creek Unit—which has numerous fencerows—than on areas where fencerows were scarce. This seemed to indicate a preference for fencerows as nesting cover. Because of the minor success of fencerow nests, however, the encouragement of fencerows does not appear to be the solution to the pheasant nesting problem.

No other cover types showed such densities as did hayfields and fencerows. The average nesting density for wasteland was one nest to 1.4 acres. The maximum nesting recorded for a wheatfield of any size was one nest to 4 acres. Two 20-acre fields contained five pheasant nests each, or one nest to 4 acres.

The placement of nests in regard to homogeneous blocks of cover has been the subject of much controversy in the past. Wight (unpublished) found that most of the nests were within 30 feet of the edges of fields or other peripheries, such as ravines or ditches. English (1933) reported that 53.7 per cent of the nests were within 50 feet of the peripheries. Hamerstrom (1936) stated that a preference for nesting in the edge zone seemed to be exhibited. He felt that this edge zone might be proportioned to the depth of the block, rather than consisting of a strip of absolute depth regardless of the field. On the other hand, neither Leopold (1937) nor Leedy (1938) noted any preference for the peripheries in the placement of nests.

In the present study it was noted that there was a definite tendency for the nests to be grouped in several small areas in a field. In several hayfields where the density of nests approached one

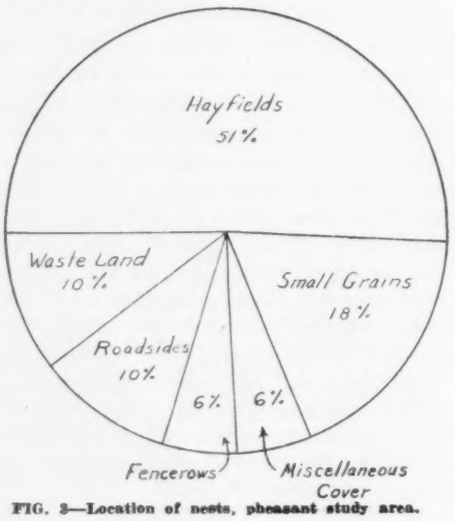


FIG. 3—Location of nests, pheasant study area.

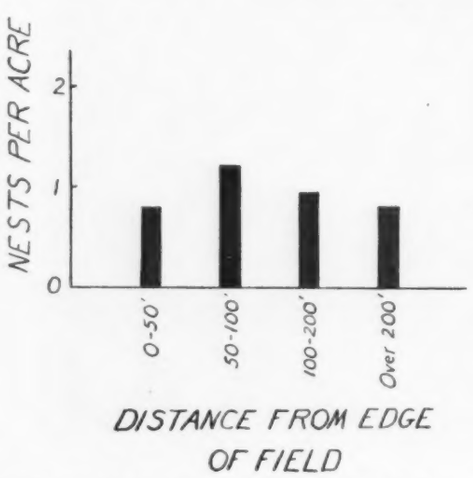


FIG. 4.—Distribution of nests in relation to the edges in a 17.4 acre clover field.

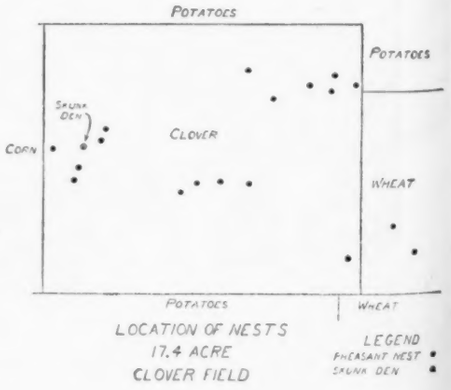


FIG. 5—An example of the placement of nests in groups in a large field.

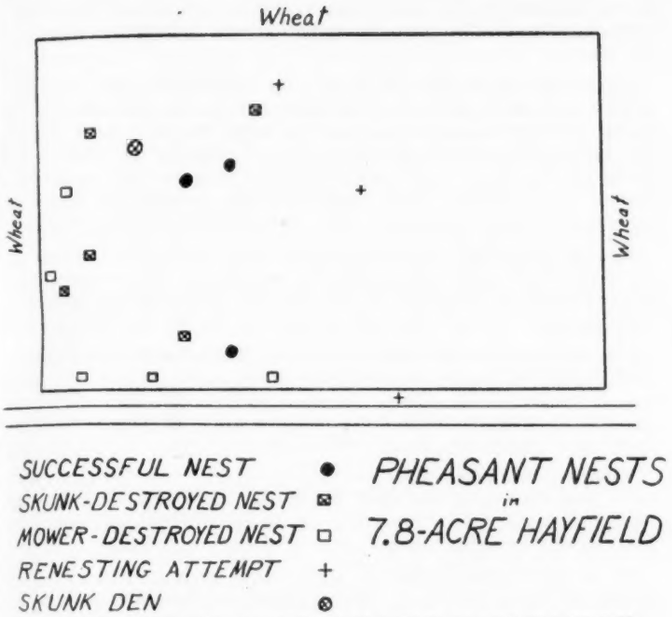


FIG. 6—The history of a concentration of nests in one end of a hayfield.

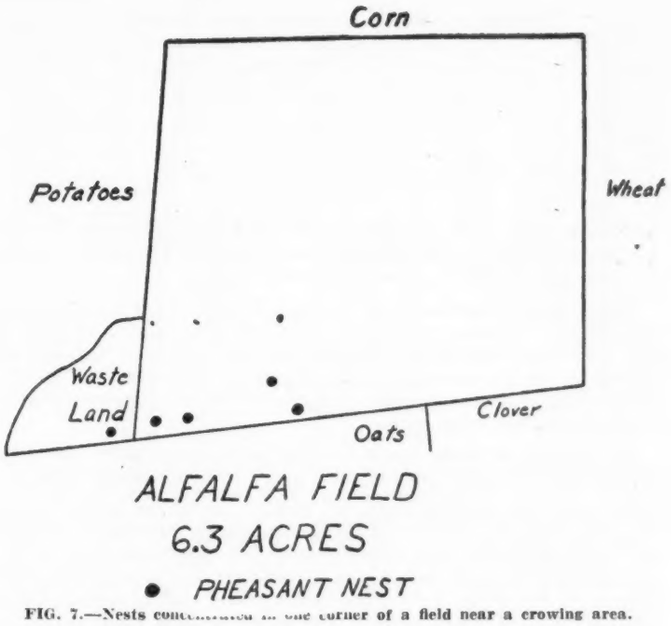


FIG. 7.—Nests concentrated in one corner of a field near a crowing area.

nest to an acre, the locations of the nests were carefully plotted to scale on a map of the field. The field was then divided into units, such as the outer 50-foot strip and the next 50-foot strip. The area of each strip and the percentage of the total area were determined. The percentage of the nests in each strip was then worked out. A study of these two sets of figures for several fields revealed conflicting data. In some fields the nests were evenly distributed in the strips on the basis of area; in other fields the largest proportion of the nests were in strips 50 to 100 feet or 100 to 150 feet from the edge. Tables 6 and 7 and Figure 4 present the distribution of nests in typical hayfields on the basis of area.

The grouping of nests in certain parts of a field was believed to be correlated with the location of crowing areas. The hens belonging to a harem tended to nest within the crowing area of the cock. If fencerows or wasteland providing suitable cover for crowing areas adjoined a field, the nests were usually in that part of the field nearest the cover. On the other hand, if the cocks were forced to establish crowing areas in alfalfa or wheat and some distance from the edge, the nests were usually far from the borders of the field. For example, a group of five nests was found almost in the center of a 62-acre field of alfalfa. The nearest periphery was 720 to 800 feet from the nests. In Figures 5, 6, and 7 are shown typical arrangements of nests in fields.

The density of pheasants also affected the placement of nests. In general, the percentage of the nests placed away from the peripheries increased as the population density increased.

The clutches ranged in size from four to twenty-three eggs (Figure 8), averaging 10.8 eggs. The clutches became smaller as the season advanced (Table 8). Two factors probably contributed to the progressive decline in the size of clutches. First, more than one hen often laid in the same nest early in the season when suitable nesting cover was scarce. Second, later nests included many renesting attempts by hens whose first nests were failures. These second clutches were usually smaller than the first ventures.

Forty-four hatched clutches upon which complete information was obtained indicated that 94.1 per cent of the eggs were fertile. As 4.1 per cent of the chicks failed to get out of the shell, 90 per cent of the eggs actually hatched. The percentage of infertile eggs was higher in late clutches than in early ones.

Of the 310 nests under observation, 63—or 20.3 per cent—were successful (Table 9). Of the 181 nests under observation on the study area, 46—or 25.4 per cent—were successful (Table 10). Other nesting studies have revealed a high mortality among pheasant nests. English (1933) found that 34.8 per cent of 13 nests studied in Michigan were successful. Only 23.1 per cent of the 445 nests studied by Hamerstrom (1936) in Iowa hatched. Girard reported the hatching of 49 per cent of the 6,977 pheasant eggs observed by him on the Nine-Pipe and Pablo Migratory Bird Refuges in Montana (Kalmbach, 1939).

Only two of the twenty-two roadside nests under observation hatched. The poor outcome of roadside nests was due to abandonment by the hens and to destruction by mowing weeds along the highways. Disturbance by man was probably a factor contributing to the failure of roadside nests.

Fencerow nests also fared poorly; only one of ten on the study area succeeded. Fencerows were travel lanes for such nest-destroying animals as skunks and opossums, and many nests in this cover were destroyed by predators.

Of the thirty-five nests observed in wasteland, 25.7 per cent hatched. As soon as cultivation of farmland ceased, the population of skunks and weasels increased; the abandoned areas afforded excellent sites for dens. The various predators combined to wreak havoc among pheasants nesting in waste areas; they destroyed 54.3 per cent of the nests in this type. Skunks accounted for 31.4 per cent of the wasteland nests.

In the hayfields of the study area, ninety-two nests were studied. Of these, twenty-five nests—or 27.2 per cent—were successful. Two hens returned and completed incubation in the open after mowing had exposed their nests.

The success of hayfield nesting attempts depended largely upon whether the hay was harvested early or late in the season. In alfalfa and clover cut during the early part of June, few nests had hatched; by late June or early July, a much larger number of nests had hatched. Even in July some nests were destroyed by mowing, as the hayfields contained renesting efforts of hens whose

TABLE 9.—Success of nesting attempts, all nests.

Cover type	Number nests	Number successful	Per cent successful
Roadside	22	2	9.1
Fencerow	16	1	6.3
Wasteland	35	9	25.7
Hayfields	182	35	19.2
Small grains	37	11	29.7
Pasture	6	3	50.0
Potatoes	2	1	50.0
Plantations	4	1	25.0
Orchards	2	0	0.0
Brush	2	0	0.0
Woods	1	0	0.0
Grain stubble	1	0	0.0
Totals	310	63	Average 20.3

TABLE 10.—Success of nesting attempts, study area.

Cover type	Number nests	Number successful	Per cent successful
Roadside	18	2	11.1
Fencerow	10	1	10.0
Wasteland	18	5	27.2
Hayfields	92	25	27.2
Small grains	33	10	30.3
Pasture	3	1	33.3
Potatoes	2	1	50.0
Plantations	2	1	50.0
Orchard	1	0	0.0
Woods	1	0	0.0
Grain stubble	1	0	0.0
Totals	181	46	Average 25.4

TABLE 11.—Success of hayfield nesting by dates.

Date of mowing	Total nests	Number hatched	Per cent hatched
June 1-5	33	3	9.1
June 6-10	38	4	10.5
June 11-15	20	2	10.0
June 16-20	10	1	10.0
June 21-25	30	9	30.0
June 26-30	27	10	37.0

first nests were failures. During the past nesting season a large number of hayfield nests hatched about June 20. The data in Table 11 show this "critical" date in hayfield nesting.

Thirty-seven clutches were discovered in fields of small grains. All but six of these clutches were in wheat. Eleven of these nests—29.7 per cent—succeeded. Because of the extensive acreage of wheat in the Pennsylvania pheasant range, this grain is an important site of pheasant nests. A large part of the pheasant crop is produced in this cover type.

The number of nests found in other cover types is too small to justify any conclusions as to the value of these covers for nesting.

The activities of men destroyed 45 per cent of the nests (Table 12). This was 56.6 per cent of the nesting losses. Mowing destroyed 39.7 per cent of the nests under observation. Eight per cent of the incubating hens were killed and 15 per cent were maimed by the mower on the study area. Harvesting grain, cutting weeds along railroad right of ways, plowing, and pilfering were other activities that caused nest failures.

Crows *(Corvus b. brachyrhynchos)* destroyed sixteen nests, or 6.5 per cent of the total. Crows also ate eggs from many nests exposed by farming operations but were not the primary causes of failure in such cases. Crow damage was recognized by a large hole picked in the shell and a crack or small hole on the opposite side where the bird's beak had broken through.

Purple Grackles *(Quiscalus quiscula quiscula)* destroyed pheasant eggs occasionally. They picked holes large enough to insert their beaks in the shells and then devoured the contents of the eggs. The holes picked in eggs by grackles were usually to small to admit the bill of a crow. (When the grackles picked a large hole in an eggshell, no differentiation between crow and grackle damage was made.)

A bluejay *(Cyanocitta c. cristata)* was observed eating eggs from nest No. 44 in a white pine plantation. This bird had eaten two eggs from a clutch of six. As the hen deserted the nest after this, failure of the nest was attributed to the jay. Eggs destroyed by bluejays were ordinarily not distinguishable from those taken by crows or grackles.

A cat killed the female on a nest in a wheatfield. Of the more than 300 nests under observation in this study, this was the only one where a predator killed a hen on the nest.

The common skunk *(Mephitis nigra)* was the most serious predator of pheasant nests. These mammals destroyed twenty-nine nests, or 9.4 per cent of the total. Skunk damage was identified by the scattered close to the nest. Toothmarks were sometimes visible on the shells.

Individual skunks seemed to form the egg-eating habit. A clutch hatched within 50 feet of an occupied skunk den, but later in the season these skunks destroyed four nests in the same field (Figure 6). Although an active skunk den was almost in the ecnter of a group of five nests in the field shown in Figure 5, no nests were harmed by the skunk. Both Stoddard (1931) and Wight (1938) state that skunks do not inherit the egg-eating habit but must acquire it.

Weasels (probably *Mustela noveboracensis)* destroyed three, or 1.2 per cent of the nests. Eggshells left by weasels were very similar in appearance to those left by skunks, but the weasels usually carried the eggs under cover before consuming the contents.

Pheasants occasionally deserted nests. Human intrusion probably contributed to the abandonment of some nests, but unsuitable sites may have led to the abandonment of others. Hen mortality may also have been responsible for some desertions. Thirteen nests were abandoned during the course of this study.

The agencies responsible for the failure of twenty-eight nests large hole chewed in the shell, the frayed membrane, and the eggs were not determined. The cause of the destruction of these nests was classifid as either unexplained or unknown predator.

Observations during the late summer revealed that about eighty broods of young pheasants were produced on the study area in the 1939 breeding season. As 154 adult hens were resident on the study area at the close of the nesting season, about 52 per cent produced young. To check these figures, all hens seen—either with or without broods—and all broods without hens were recorded. A tabulation of these series indicated that about 55 per cent of the hens had produced young, so that the estimate of the number of broods hatched on the area seemed nearly correct.

Although the clutches averaged 10.8 eggs (Table 8), only 90 per cent of the eggs actually produced young. Thus 9.7 chicks to a clutch were hatched. The number of broods, multiplied by the average number of young in a brood, gave the number of young pheasants produced on the study area—$80 \times 9.7 = 776$.

Brood counts were taken throughout the summer. They indicated a shrinkage from 9.7 at hatching to 8.5 at ten weeks of age. During the first three weeks the broods diminished rapidly in size, but thereafter the shrinkage was gradual (Figure 9). The number of broods on the study area, multiplied by the average size at ten weeks, gave the number of young surviving in the fall—$80 \times 8.5 = 680$.

The juvenile mortality was the difference between the number of pheasants hatched on the area and the number reaching maturity: $776 - 680 = 96$. The loss, ninety-six birds, represented 12.4 per cent of the young produced on the study area.

About 66 per cent of the juvenile mortality among study-area birds was explained. This mortality was caused by a variety of factors, including mowing, harvesting, falling into depressions from which the young could not extricate themselves, weather, and predators—such as Cooper's hawks, marsh hawks, and stray dogs.

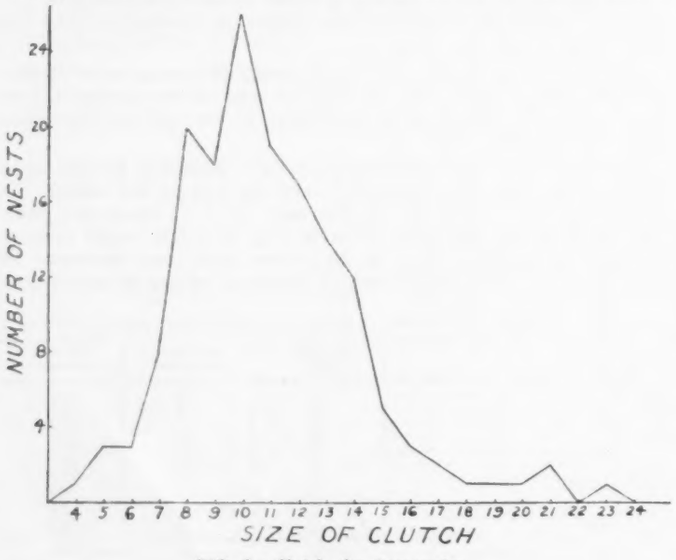


FIG. 8.—Clutch size frequencies.

FIG. 9.—Seasonal decline in size of broods.

The losses due to predators were not extensive. Contemporaneous food habits studies of marsh hawks, which were common on the study tract, indicated that these harriers were not serious enemies of pheasants.

Productivity was defined by Leopold (1933) as "the rate at which mature breeding stock produces other mature stock." The population of the pheasant study area in the fall of 1939 was about 850 birds. The breeding population consisted of 204 pheasants. The actual productivity of the 1,675-acre study tract in 1939, therefore, was 646 birds, or about 317 per cent.

The population of the study area in the fall of 1939 was 100 birds less than in the fall of 1938 (Table 2). Other regions censused by the roadside-count method Randall and Bennett, 1939) indicated that this reduction in pheasant density was not limited to the study area.

Observations in the nesting season indicated that the exceptionally dry weather during June, 1939, was primarily responsible for the reduction in the pheasant population. Because of the dry weather, most of the hay was cut in June. Only 27.2 per cent of the study area's hayfield nests were successful (Table 10), whereas Leopold (1937) reported the hatching of 41 per cent of the hayfield nests examined by him. Half of the study area nests were in hayfields, and an increase of 15 per cent in successful hayfield nests would have returned the population of the study tract to its 1938 level. Many nests in hay were destroyed within a few days of hatching. The nesting study indicated that had all the mowing on the study area been deferred for one week, the number of successful nests would have been increased by 20 per cent. Ideal late June weather—from the standpoint of the pheasant—would probably consist of light showers and threatening weather, sufficient to postpone mowing but unharmful to young pheasants.

Summary

The pheasant population of the 1,675-acre study tract in the fall of 1938 was 950 birds, or 1 bird to 1.8 acres. Hunting and associated losses reduced the population to 300 pheasants in early December.

Although the approach of the breeding season in late March apparently increased the vulnerability of the pheasants to predation, winter mortality was low. The study-area population dropped to 204 birds before spring. Many pheasants left the area during the winter when hand-picked standing cornfields were destroyed. The availability of standing cornfields and the winter carrying capacity of a Pennsylvania area for pheasants seemed to be closely correlated.

A breeding population of about 1 bird to 8 acres and a sex ratio of 1 cock to 7 hens occurred on the study area. In spite of the unbalanced sex ratio, 94.1 per cent of the eggs were fertile.

During this study 310 nests were under observation. The nesting season extended from April through August, reaching its peak in May and June. About half of the nests on the study area were in hayfields. Other important nesting cover included wheat, roadsides, and waste land.

In many hayfields a density of 1 nest to an acre was observed. The maximum density recorded was on a measured acre where ten nests were simultaneously occupied. When the density of nests approached or exceeded 1 to an acre, there seemed to be no tendency to seek a peripheral zone. The grouping of nests in certain parts of a field was often dependent upon the location of crowing areas.

The number of eggs in a clutch decreased as the season advanced. This indicated that wildlife managers should encourage farming practices that would enable the first clutch to succeed.

On the study area 25.4 per cent of the nests were successful. Nest mortality was large in all the important nesting covers, and no "best" type for nesting was discovered. Mowing was the most serious cause of nest destruction, accounting for 49.8 per cent of the nesting losses. Predators were responsible for 30.7 per cent of the nest failures. Skunks and crows were the most serious nest-destroying species.

Through renesting efforts, between 52 and 55 per cent of the hens on the study are raised broods. Juvenile mortality was comparatively low, as only 12.4 per cent of the hatch failed to reach maturity.

The population of the study area in the fall of 1939 was about 850 birds. This was an increase of 317 per cent from the breeding population in the fall of 1938. This decline in population was general throughout the pheasant range. The early summer drouth was believed responsible, as the mowing was done unusually early. The haying operations destroyed many nests that were within a few days of hatching. Delay of the mowing for one week on the entire study area would have increased the number of successful nests by 20 per cent.

Cause of failure	Number	Per cent of losses	Per cent of all nests
Man			
Mowing	123	49.8	39.7
Harvesting	9	3.6	2.9
Cutting weeds	5	2.0	1.6
Miscellaneous	3	1.2	0.9
Predators			
Crow	16	6.5	5.2
Grackle	2	0.8	0.6
Bluejay	1	0.4	0.3
Dog	5	2.0	1.6
Cat	1	0.4	0.3
Skunk	29	11.7	9.4
Weasel	3	1.2	1.0
Unknown predators	19	7.7	6.2
Pheasants			
Abandoned	13	5.3	4.2
Dump nest	2	0.8	0.6
Observer	3	1.2	1.0
Flooding	4	1.6	1.3
Unexplained	9	3.6	*2.9
Total	247	99.8	79.7
Hatched	63		20.3
Grand total	310		100.0

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FOX HUNTING NOTES By W. Newbold Ely, M. F. H.

FROM time to time in the past we have emphasized how masters and every member of the field plus all those at all interested in foxhunting, should cooperate in helping the small game situation by doing a little planting. An acre or two here and there is all that is necessary, and the expense is negligible, yet in the benefit to wildlife pays dividends many times over, and gives a concrete evidence to other sportsmen that foxhunters also believe in helping the other fellows' sport. The following extracts from the instructions of the Pennsylvania Game Commission will prove helpful to all those going into this worthy project.

"Plans should be made early for plots which are to be planted this year. It has been found that many landowners are willing to plant the mixture along the edges of their fields if the seed is furnished for them. The food plot will attract and hold insect and weedseed eating birds, and thus be of considerable assistance to the landowner in his battle against pests. The mixture, as made up for planting in 1941, will contain the following grains in the amounts shown for each 100 pounds.

Broom Corn (Dwarf Jap.)	20 lbs.
Shorghum (Early Amber)	20 lbs.
Sudan Grass	5 lbs.
Buckwheat (Tartary)	5 lbs.
Sunflower (Small Branching)	8 lbs.
Hungarian Millet	5 lbs.
Japanese Millet	13 lbs.
Golden Millet	10 lbs.
Dolby Milo	5 lbs.
Kaffir Corn (Greeley or Highland)	6 lbs.
Rape (Dwarf Essex)	1 lb.
Hairy Vetch	2 lbs.

It should be planted in plots of about ¼ to ½ acre, preferably in long narrow strips. The plots should be located either in or adjacent to good natural cover,, such as brushy ditch banks, fence rows, gulleys or woodlots. For best results fertilizer should be used on each plot. In some cases lime also is needed. Consult local agricultural leaders for advice as to the particular requirements in each locality.

Not more than fifteen pounds per acre should be sown broadcast on a prepared seed bed from about May 15 to June 15. Best results have been obtained from sowing by hand, as a drill does not distribute the various ingredients equally because of the different sized seeds. It is to be hoped that many additional organizations will arrange for the planting of one or more game food plots this year in order that the supply of wildlife food may be greatly increased." It is suggested that each person write their state game commission for data as to where to get the mixture and instructions for their locality, and then go ahead and do it.

Now that foxhunting is over for the season possibly some readers will take up the sport of cathunting by polishing off a few maurauders as they catch them stealing through the countryside. Let me quote from the most excellent game study by the University of Missouri. "It should be understood at the outset that the sportsman, the wildlife manager, and the naturalist can have no quarrel with the pet cat which is well fed, which is kept in at night, and whose surplus kittens are disposed of. These are the conditions under which cats are least likely to become a menace to wildlife and most likely to justify general esteem as mousers and pets. Cats stand high in the public regard, and as long as they remain mousers and pets they should be as well protected as other valued animals. It is because of the night-hunting pet cat, and the stray that hunts all the time, that this species ranks as an important predator." The cruising radius of the maurauding cat is 4 miles, which gives some idea of the surprisingly large area one cat running wild will cover. They have 2 to 4 litters a year, and 5 to 9 in each litter. Kittens are born wild as far as 8 miles from the nearest house. Massachusetts estimates that cats kill 2 million birds a year and the New York Biological Survey gives their number as 3½ million and Illinois 2½ million. Cats should be licensed, agencies created for their disposal, and a law against abandoning cats or kittens.

SNAKES

(Continued from Page 14)

nest. Upon dissection, we removed one-half dozen unbroken grouse eggs from the snake's stomach. Blacksnakes are wonderful climbers. We have observed them negotiate the vertical roughened bark of a gum tree to a height of forty feet or more to get at a bird's nest. Another trick that blacksnakes have up their sleeve is the vibration of their tails against dry grass or twigs, giving a good imitation of the rattler's sound device.

Speaking of rattlers, we found that some rattlesnakes might be approached without exciting them to the rattling point. Sometimes it was necessary to really disturb a rattler before it would vibrate its emotional challenge. In this case the rattle would have been too late for a warning had we not observed the snake first.

My experience has been that rattlesnakes are more or less sluggish and easily killed or captured. I have taken quite a number alive by the simple expedient of looping them behind the head with a stout cord. A noose tied to a pole might be better if the nerves are unsteady. Most of the specimens taken in this way paid no attention to the loop as it was angled over their heads. The cord was jerked and the snake hung suspended and helpless.

In the mountains of Dauphin County we record our first rattlesnake about the first of May, along with spring flowers and trout fishing. Our notes indicate that the last rattler of the season was seen crossing the road near the Clarks Valley Dam about October 9.

Rattlers like the open sunny sports in early spring, but during hot weather they haunt the shade of low herbage and the moist banks of cool streams or bottom lands. Copperheads and rattlers are both nocturnal and are often abroad at night hunting for food.

Wildlife Insurance for the Americas

(Continued from Page 9)

tion in national parks consistent with the purpose of this Convention."

Nations which have signed the Convention include Bolivia, Cuba, El Salvador, Nicaragua, Peru, the Dominican Republic, the United States, Venezuela, Ecuador, Costa Rica, Mexico, Uruguay, Brazil, Guatemala, Colombia, Guiana and Chile.

From Behind the Camera

(Continued from Pag 11)

pinioned, and of course could not fly, while the fifth was a mute swan. The last named is not native to this country, but being full-winged it was truly a spectacle when after taxiing over the ice it would take to the air much in the manner of some huge lumbering plane.

Many times as I lay watching the swans move among the geese as they fed or rested, I wondered how it could be possible for anyone to mistake a whistling swan, with its all white plumage, for a gray-winged, black-necked, Canada goose. Nevertheless, such was the story given by many hunters during the past season in a number of parts of the state when they were found guilty of shooting swans.

Over 150 black and mallard ducks likewise frequented the open water, and at times these birds were joined by a few merganzers and four or five golden-eyes.

The Pymatuning Refuge is surely proving its value as year after year great hords of weary waterfowl pause to rest and feed in the safety of its boundaries as they wing their way to and from their northern breeding grounds.

"We have been seeing quite a few grouse lately."—Ernest E. Hunsinger, Game Protector, Potter County.